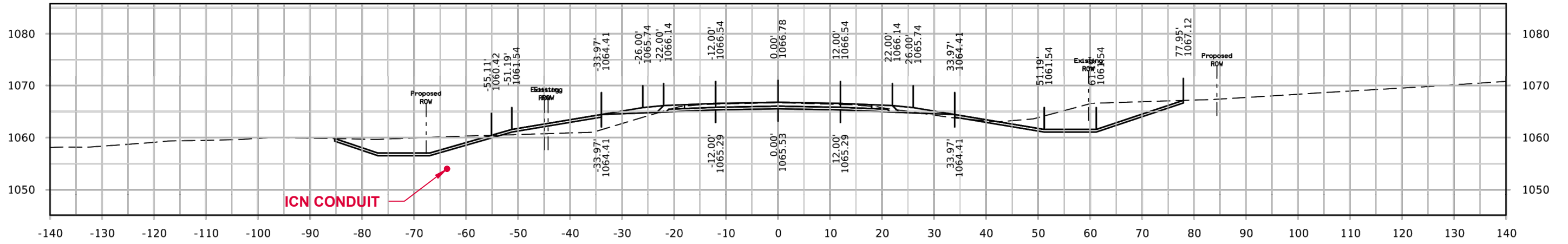
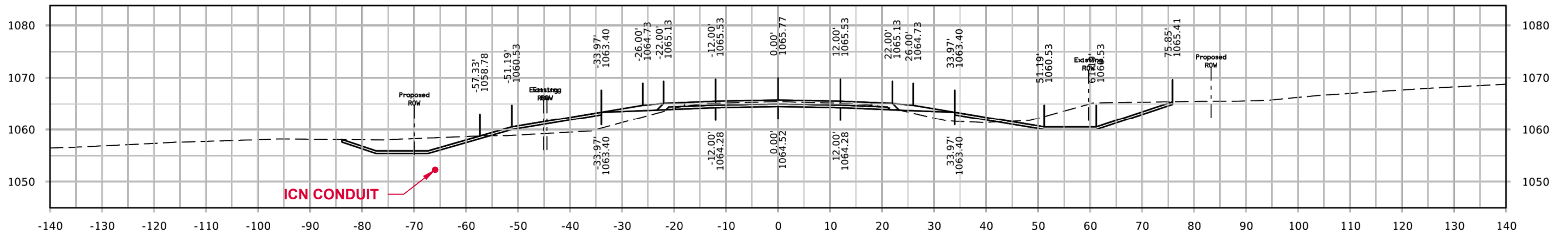


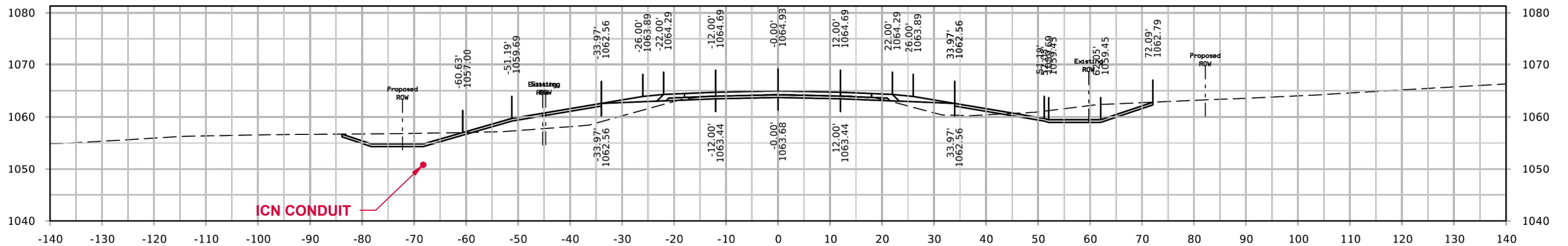
CROSS SECTION



STA. 1322+50.00
CROSS SECTION CO



STA. 1322+00.00
CROSS SECTION CN

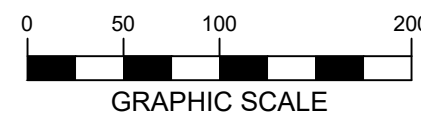


STA. 1321+50.00
CROSS SECTION CM

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING

* CONDUIT NOT TO SCALE



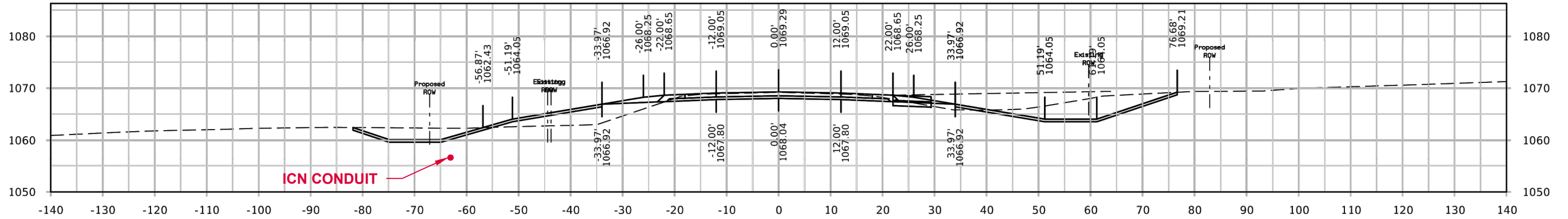
MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
2	FOR 90% REVIEW	10/12/2023
3	FOR PERMIT PLANS	10/24/2023
4		

IOWA COMMUNICATIONS NETWORK
400 EAST 14TH STREET
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DES MOINES, IOWA 50319
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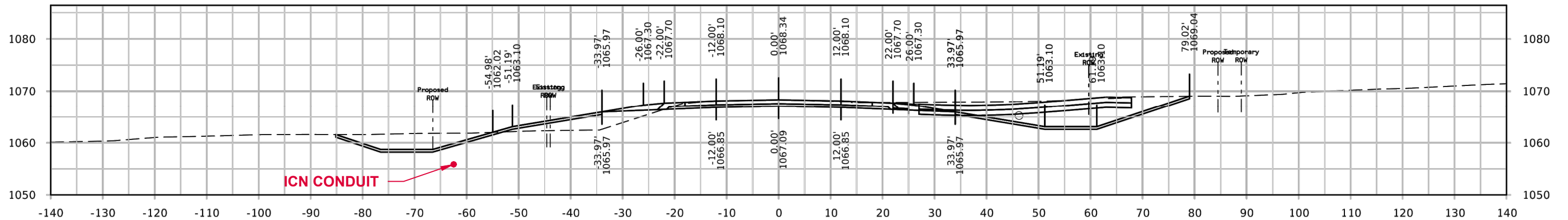
CROSS SECTION

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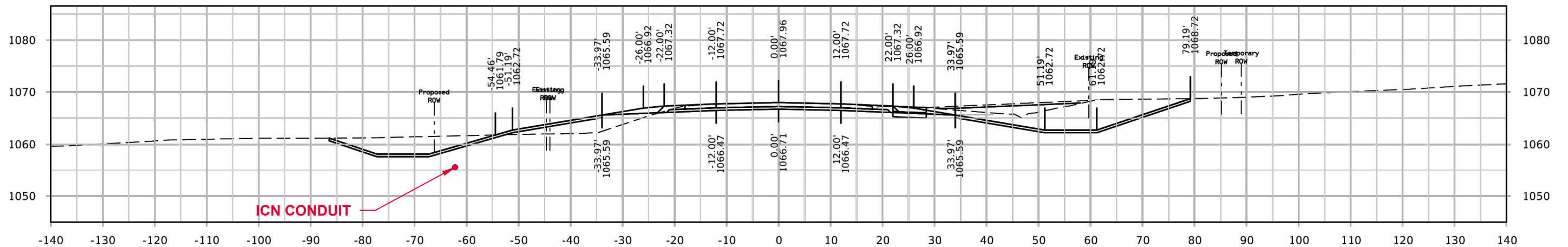
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



STA. 1323+50.00
CROSS SECTION CR

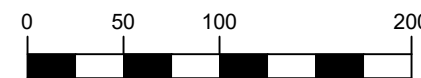


STA. 1323+14.76
CROSS SECTION CQ



STA. 1323+00.00
CROSS SECTION CP

* CONDUIT NOT TO SCALE



GRAPHIC SCALE



MANCHESTER — DOT HWY 13 RELOCATION
FIBER INSTALLATION

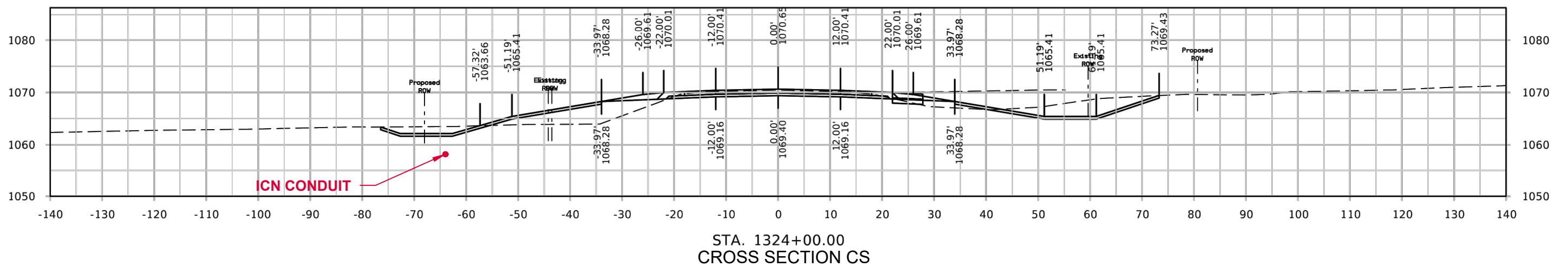
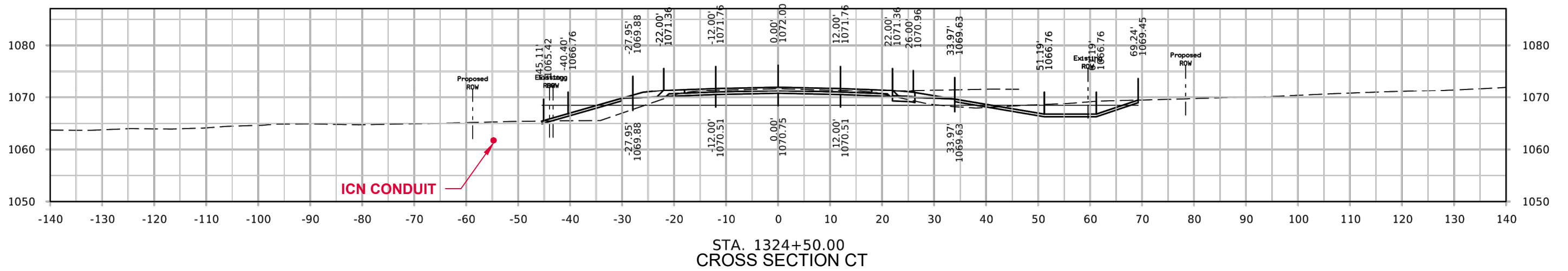
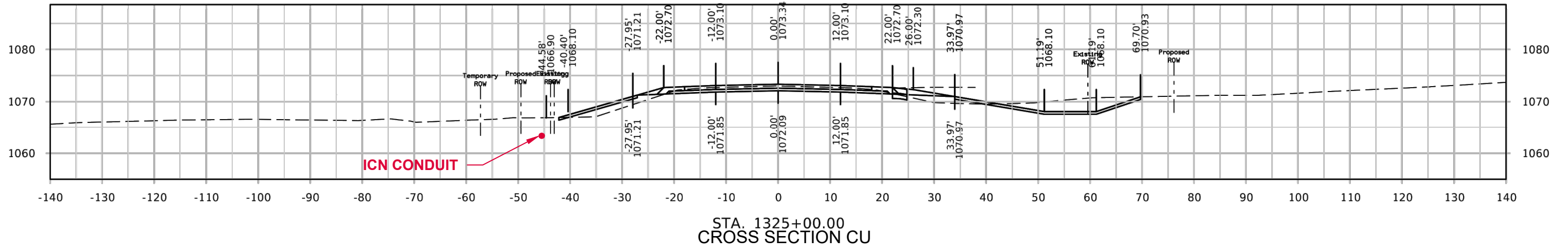
1	FOR 60% REVIEW	09/25/2023
2	FOR 90% REVIEW	10/12/2023
3	FOR PERMIT PLANS	10/24/2023
4		

hbk **ICN**
IOWA COMMUNICATIONS NETWORK
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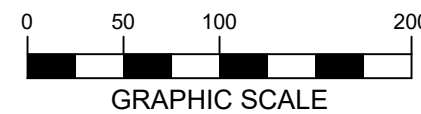
CROSS SECTION

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



* CONDUIT NOT TO SCALE

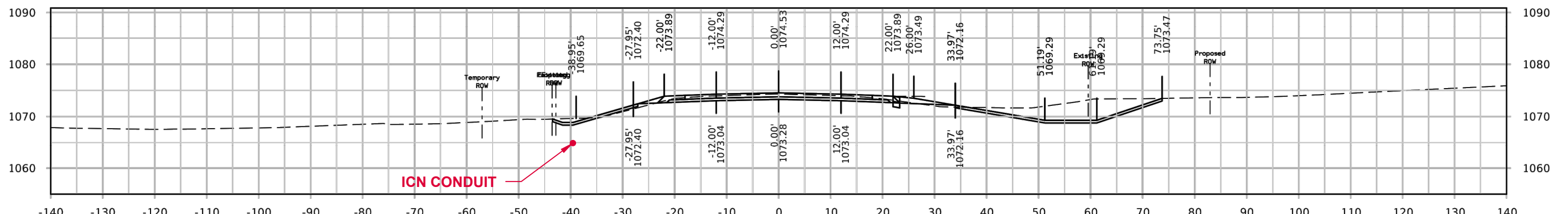
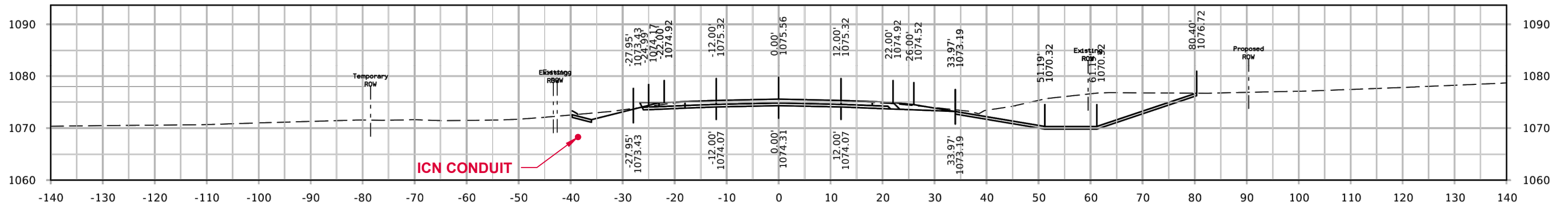
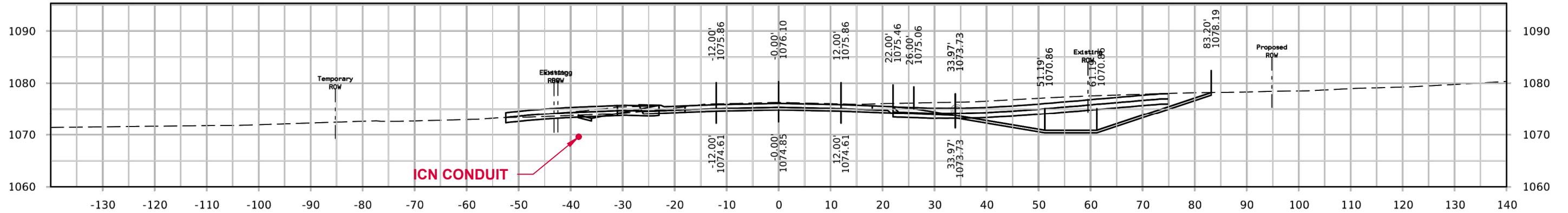


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			 IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION
1	FOR 60% REVIEW	09/25/2023	
2	FOR 90% REVIEW	10/12/2023	
3	FOR PERMIT PLANS	10/24/2023	
4			

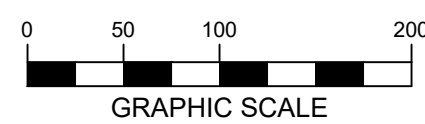
CROSS SECTION

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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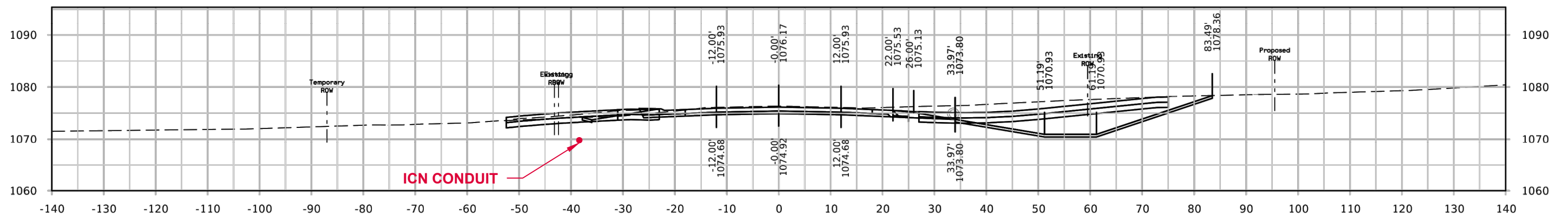
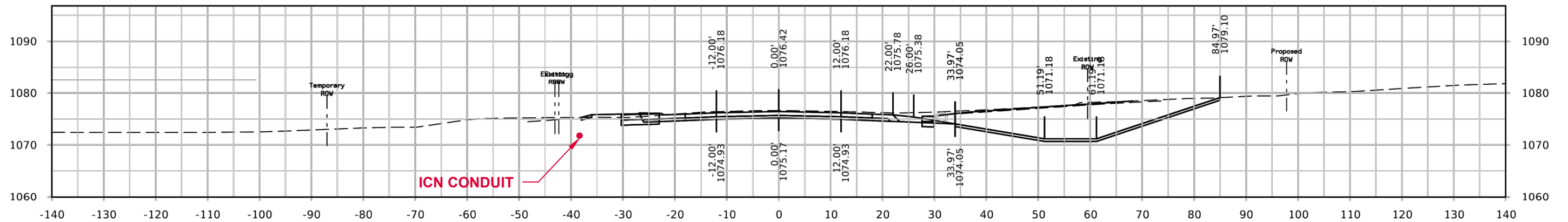
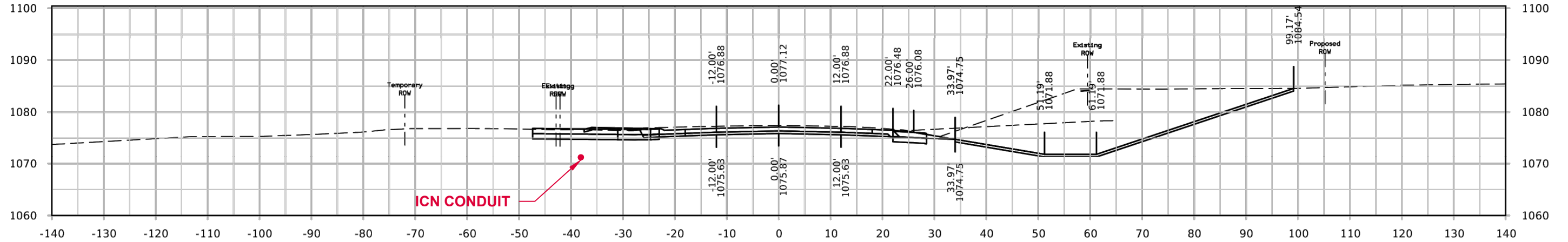
MANCHESTER — DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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IOWA COMMUNICATIONS NETWORK
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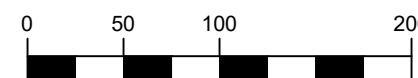
CROSS SECTION

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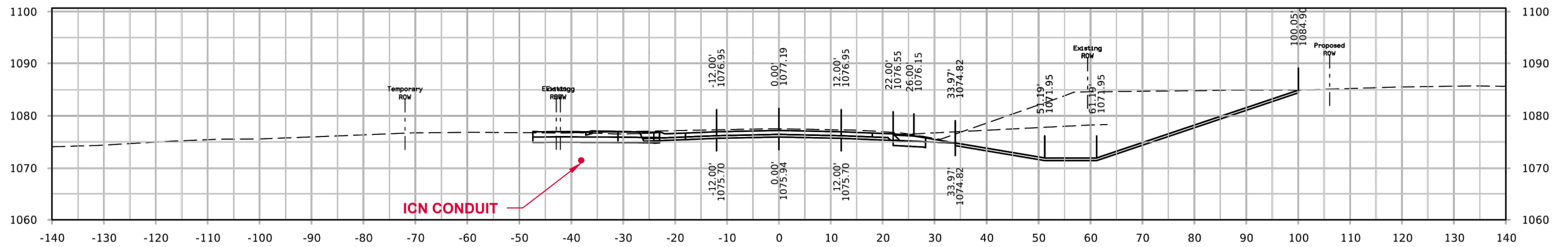
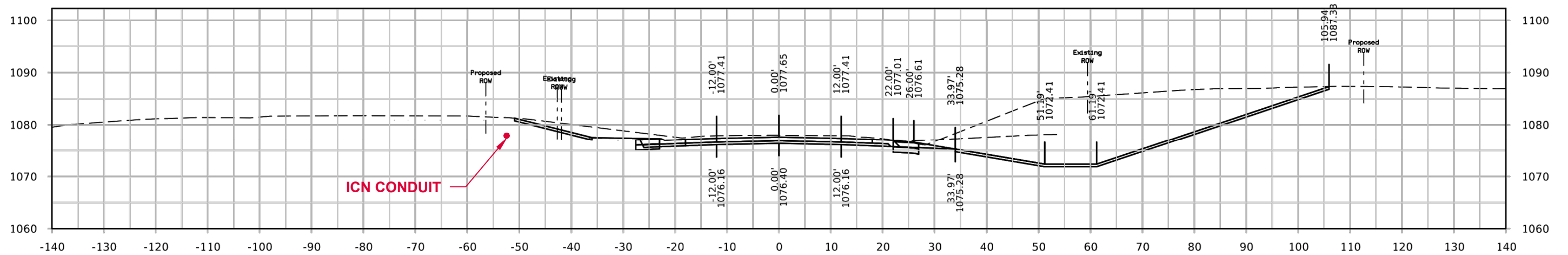
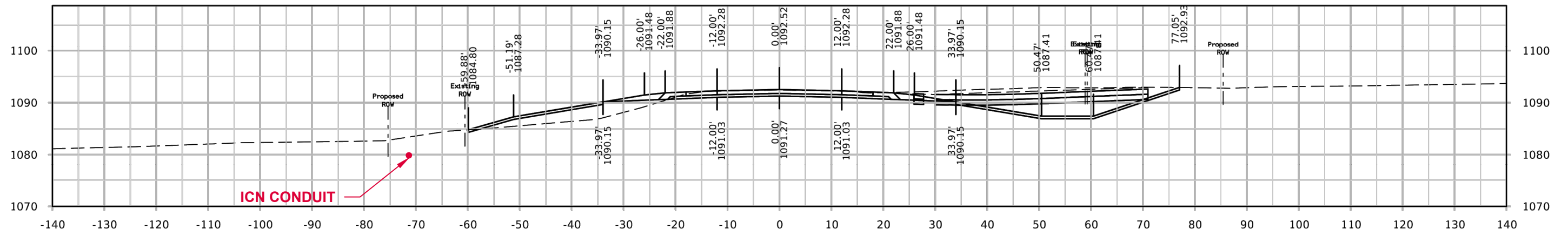


GRAPHIC SCALE

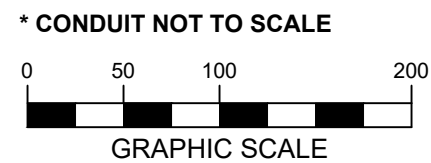


MANCHESTER — DOT HWY 13 RELOCATION FIBER INSTALLATION			<p>IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
2	FOR 90% REVIEW	10/12/2023	
3	FOR PERMIT PLANS	10/24/2023	
4			

CROSS SECTION



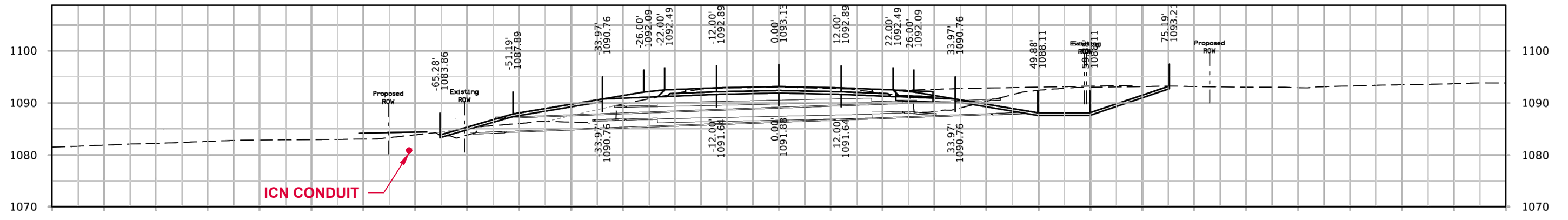
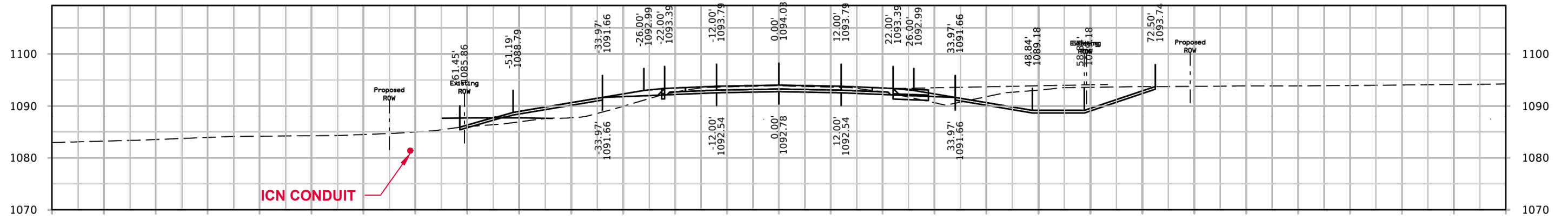
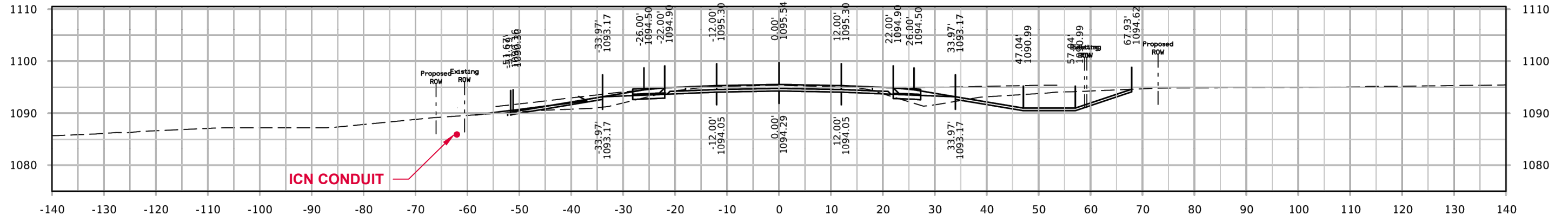
- NOTES:
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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400 EAST 14TH STREET
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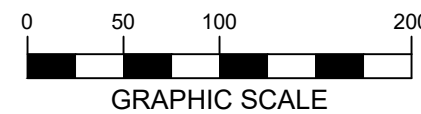
CROSS SECTION



NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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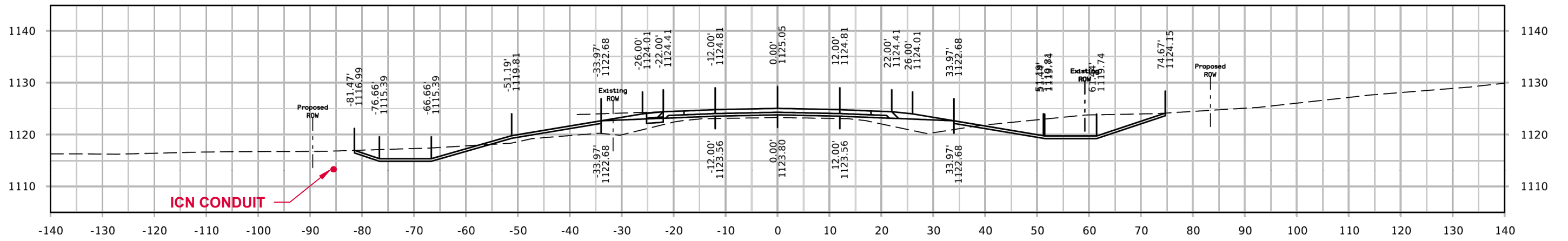
* CONDUIT NOT TO SCALE



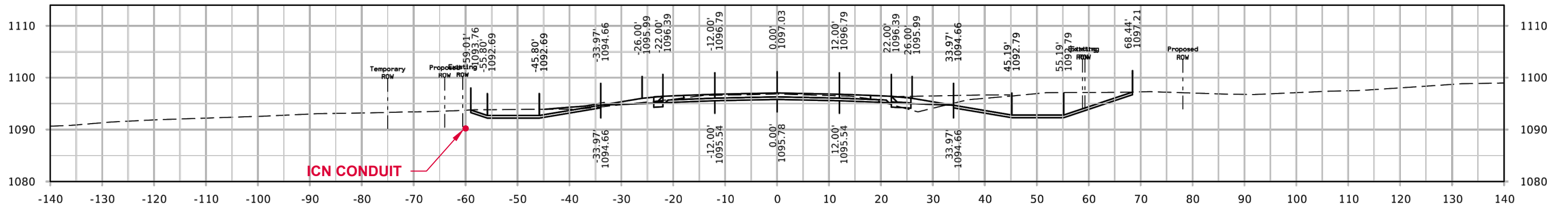
MANCHESTER — DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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400 EAST 14TH STREET
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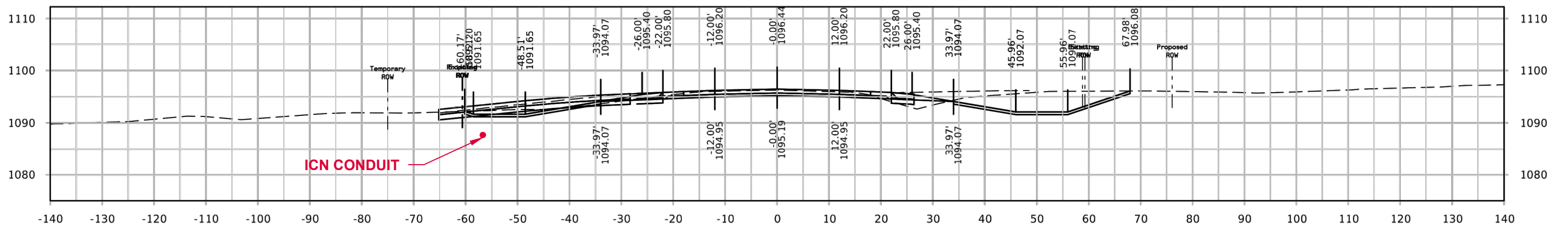
CROSS SECTION



STA. 1353+50.00
CROSS SECTION DJ



STA. 1343+50.00
CROSS SECTION DI

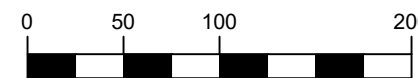


STA. 1343+29.99
CROSS SECTION DH

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING

* CONDUIT NOT TO SCALE



GRAPHIC SCALE



MANCHESTER – DOT HWY 13 RELOCATION
FIBER INSTALLATION

1	FOR 60% REVIEW	09/25/2023
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4		

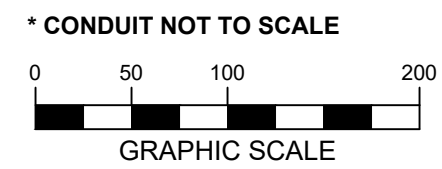
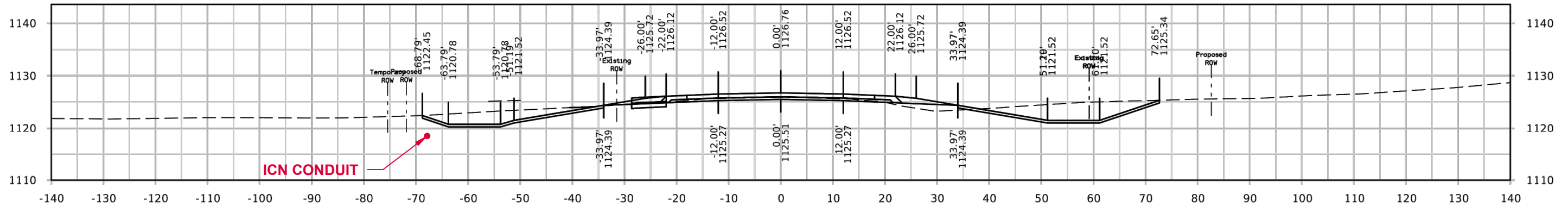
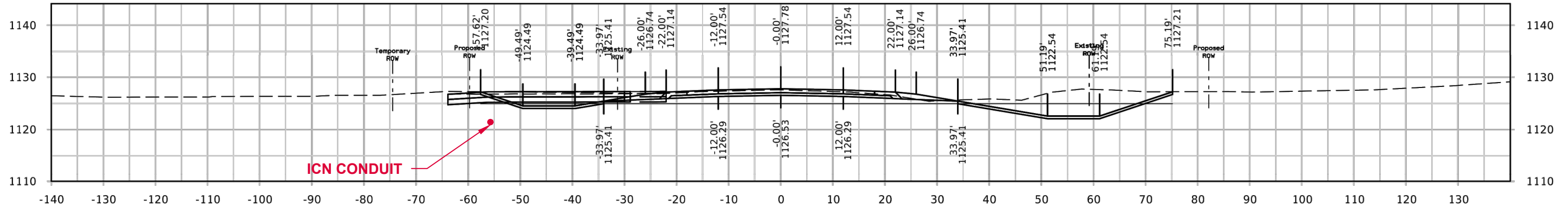
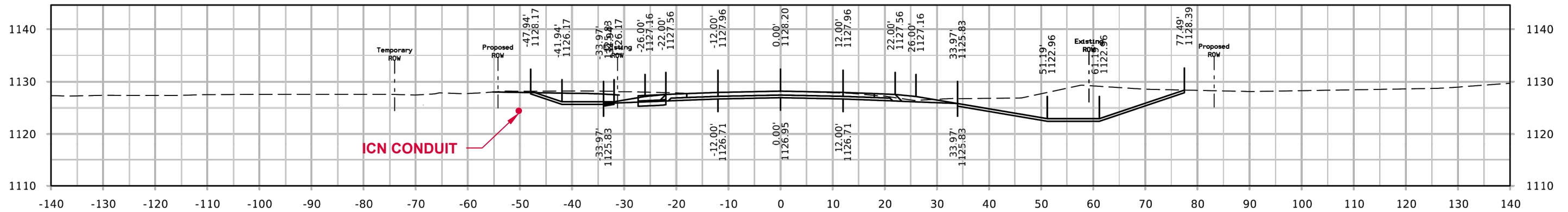
hbK **ICN**

IOWA COMMUNICATIONS NETWORK
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CROSS SECTION

NOTES:

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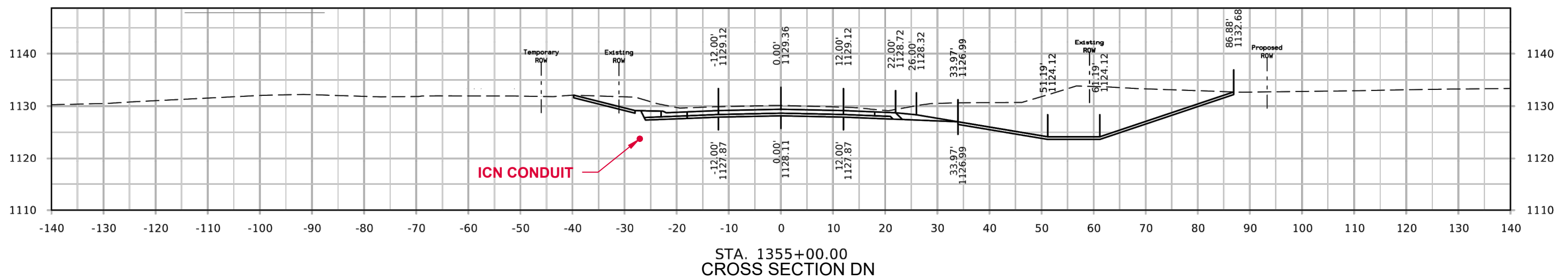
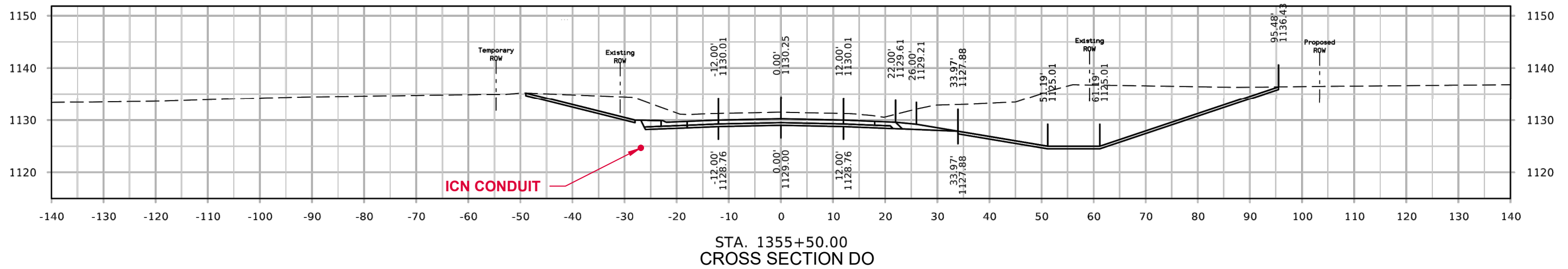
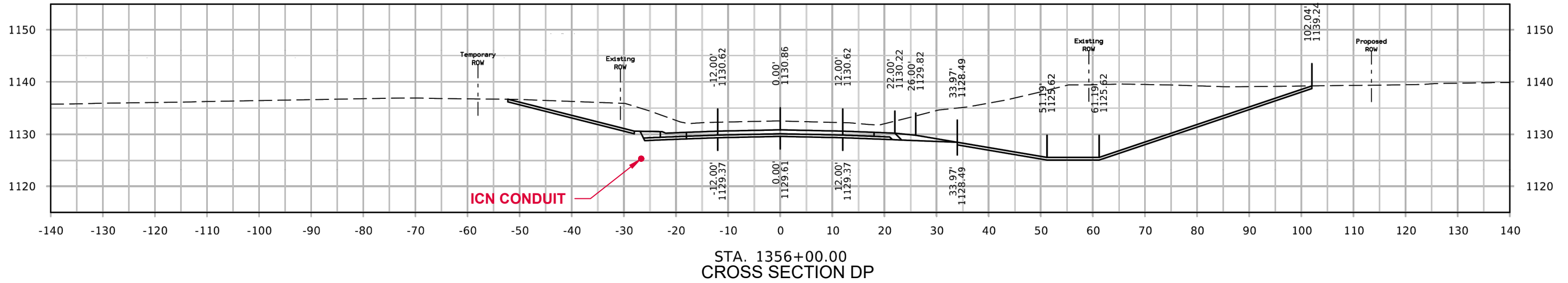


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			<p>IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
2	FOR 90% REVIEW	10/12/2023	
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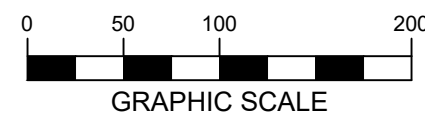
CROSS SECTION

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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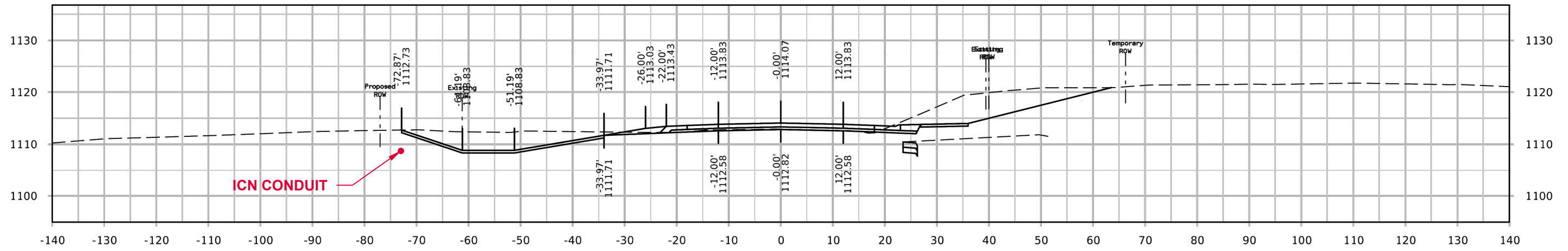
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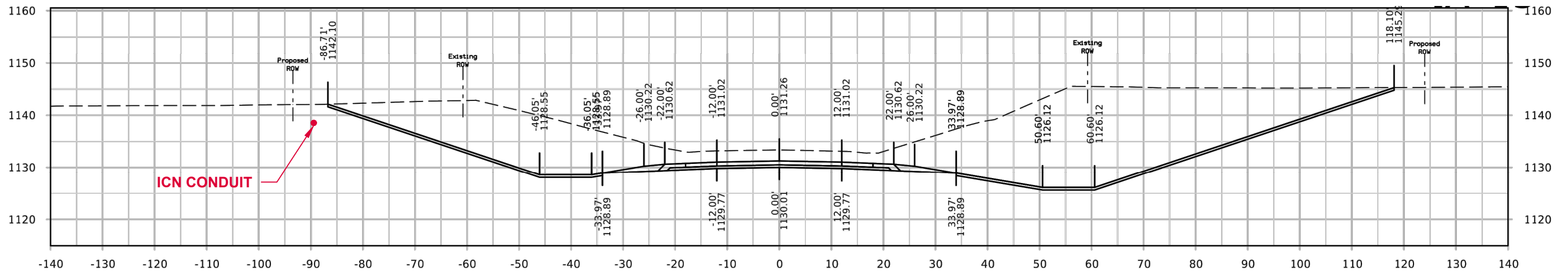
MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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 400 EAST 14TH STREET
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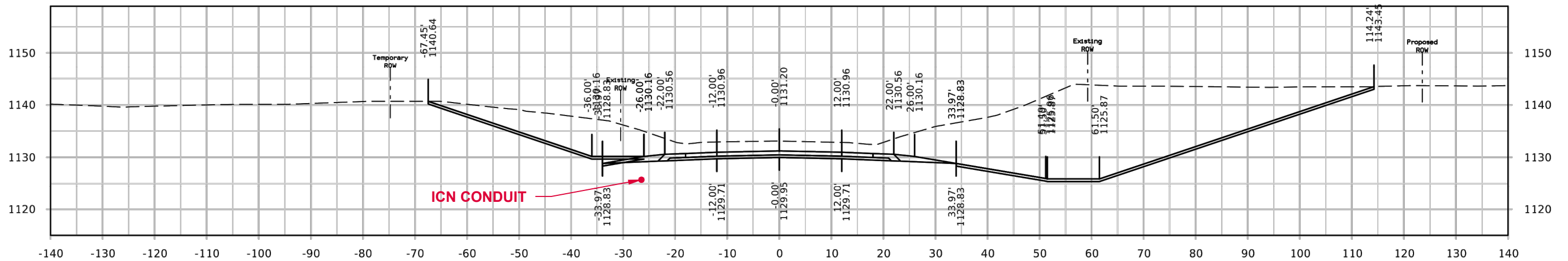
CROSS SECTION



STA. 1368+00.00
CROSS SECTION DS

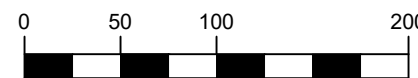


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STA. 1356+50.00
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* CONDUIT NOT TO SCALE



GRAPHIC SCALE

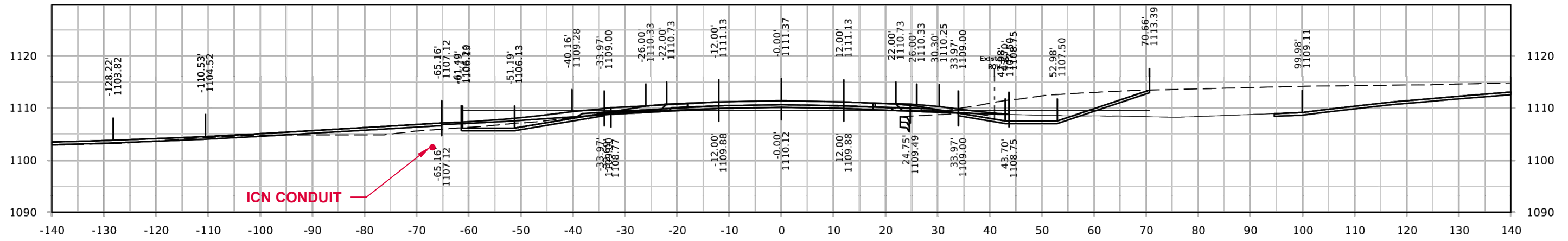


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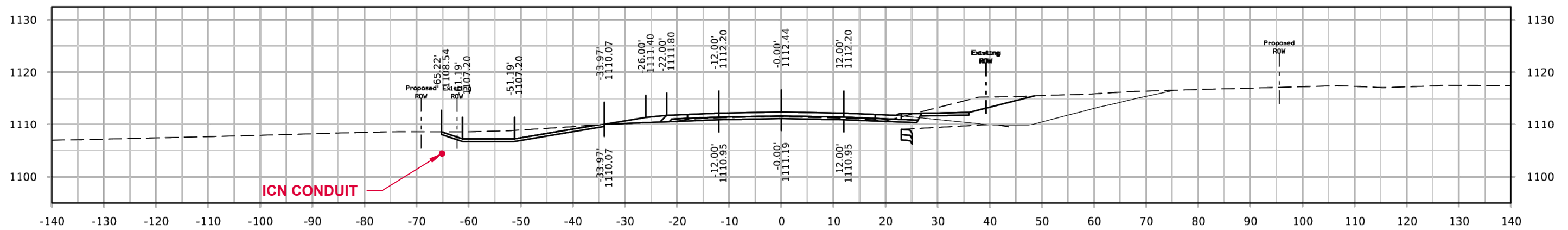
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING

MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			<p>IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
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4			

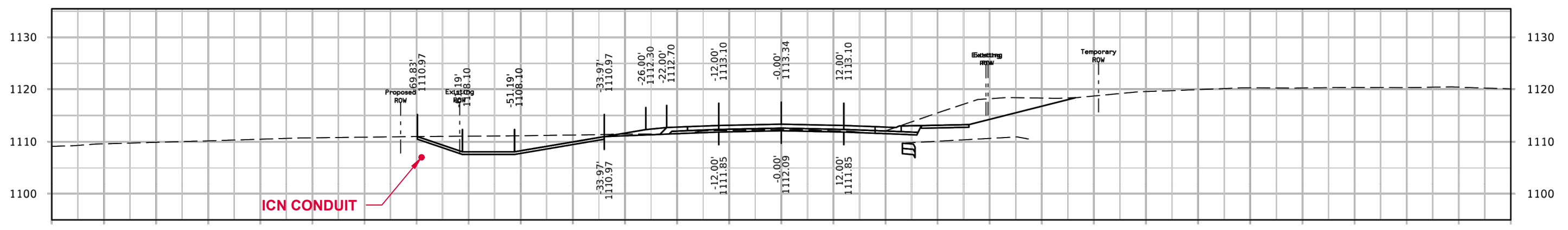
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STA. 1369+50.00
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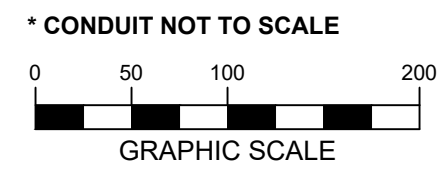


STA. 1369+00.00
CROSS SECTION DU



STA. 1368+50.00
CROSS SECTION DT

- NOTES:
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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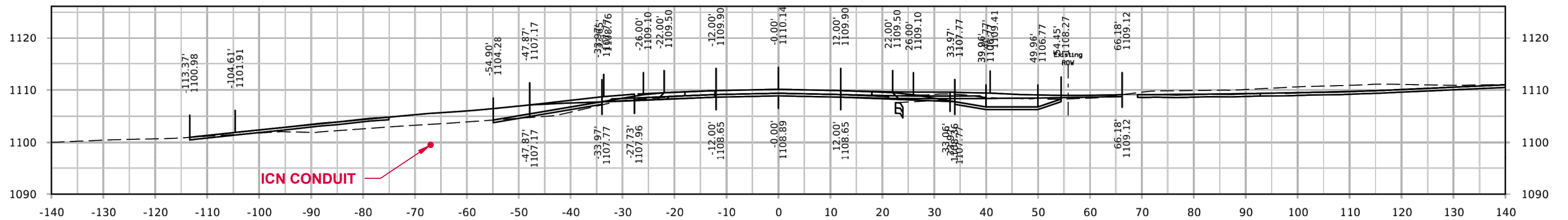
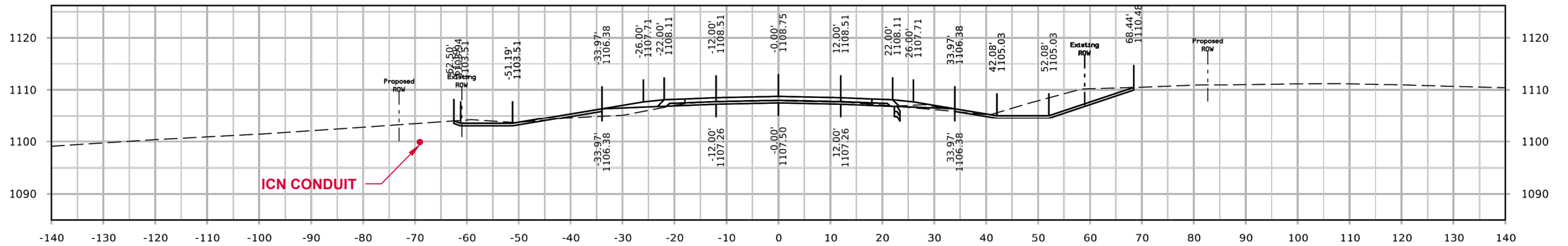
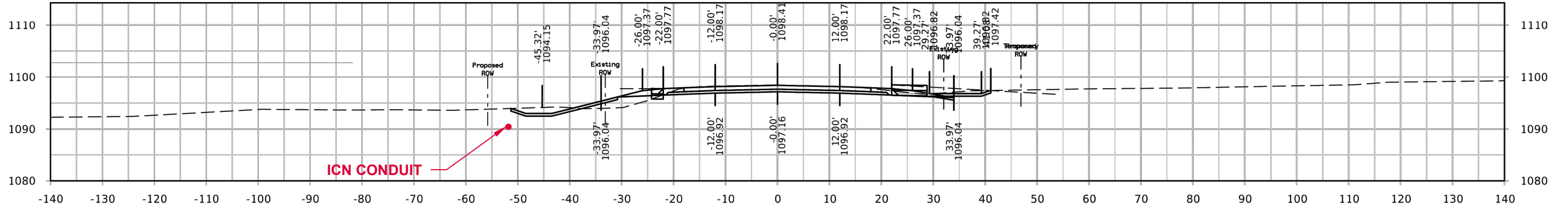
MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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CROSS SECTION

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* CONDUIT NOT TO SCALE



GRAPHIC SCALE



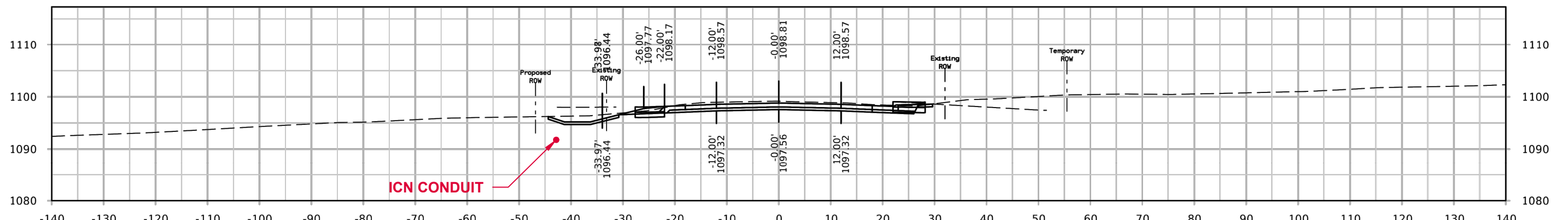
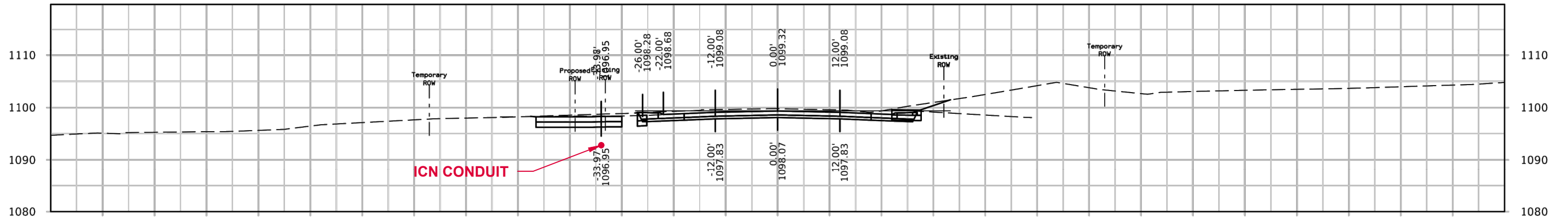
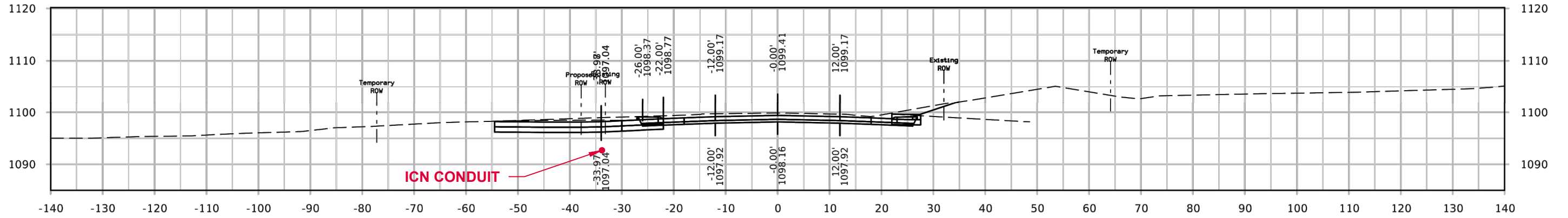
MANCHESTER – DOT HWY 13 RELOCATION		hbk ICN
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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GRAPHIC SCALE

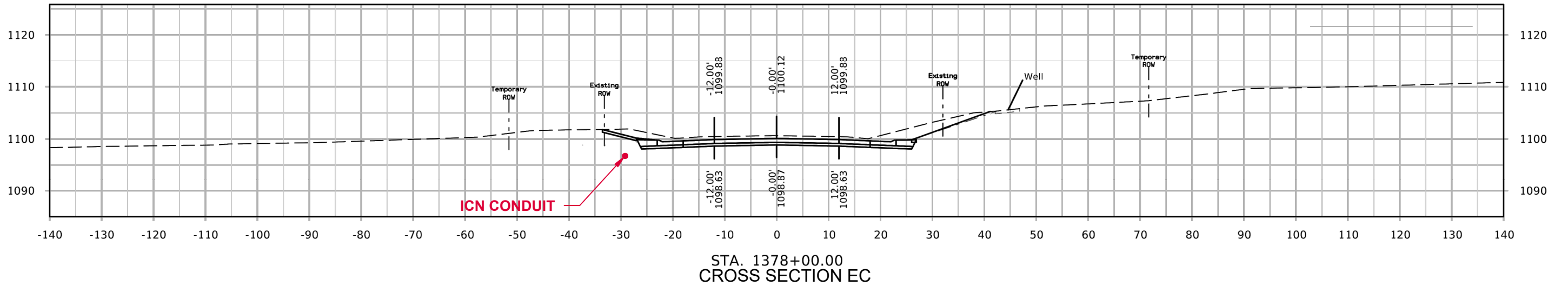
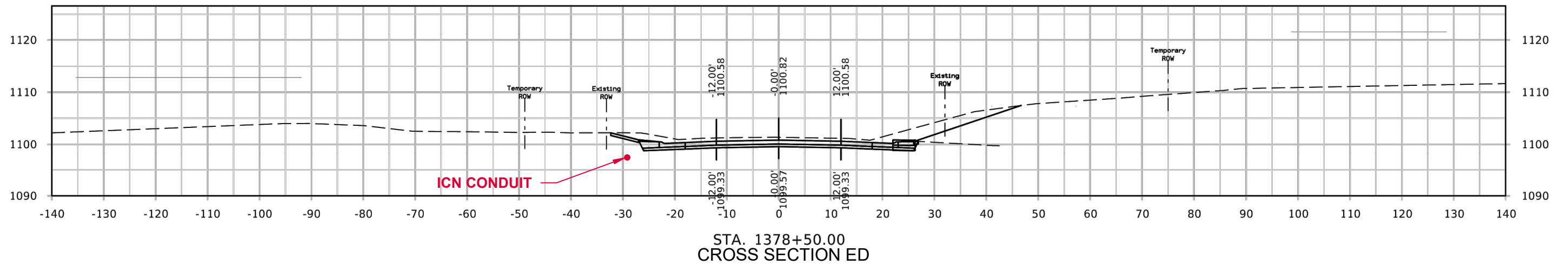
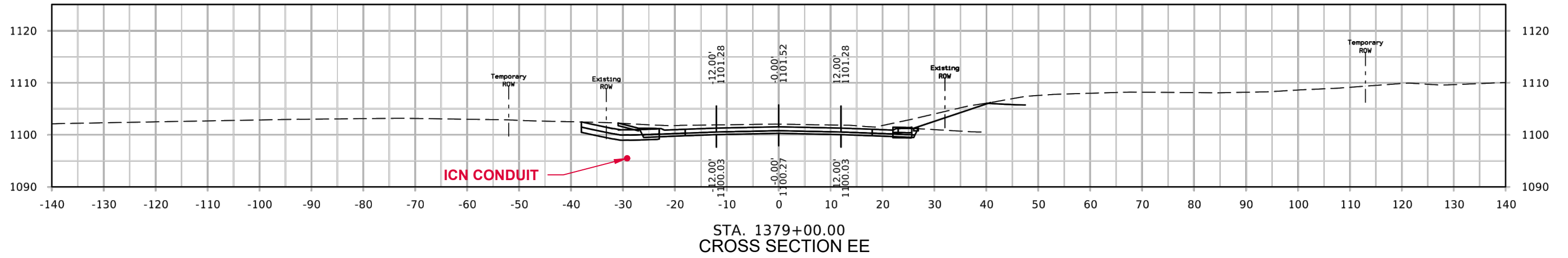


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			 IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION
1	FOR 60% REVIEW	09/25/2023	
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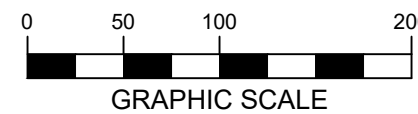
CROSS SECTION

NOTES:

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2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



* CONDUIT NOT TO SCALE

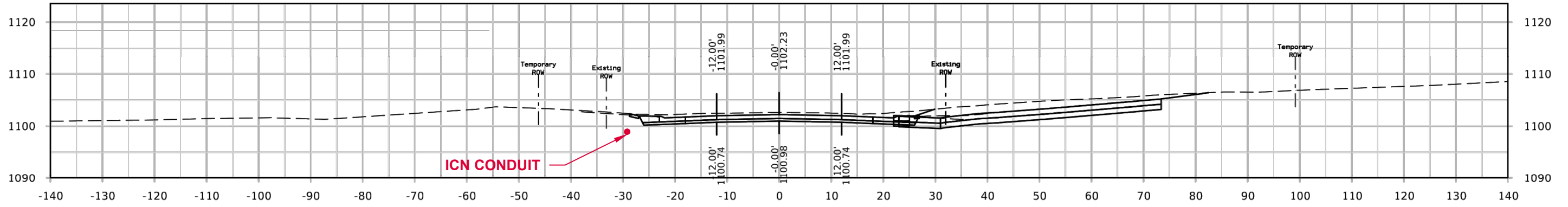


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			<p>IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
2	FOR 90% REVIEW	10/12/2023	
3	FOR PERMIT PLANS	10/24/2023	
4			

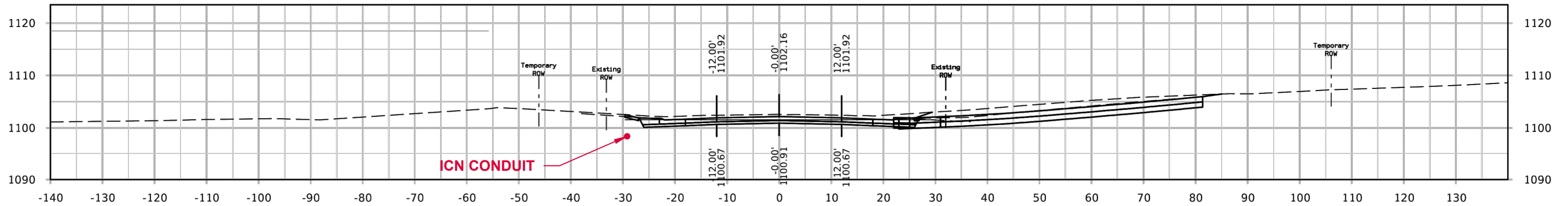
CROSS SECTION

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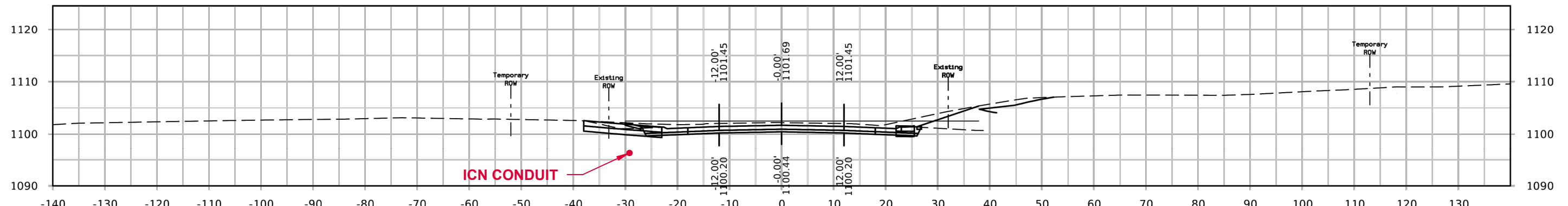
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



STA. 1379+50.00
CROSS SECTION EH

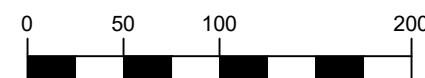


STA. 1379+45.02
CROSS SECTION EG



STA. 1379+11.78
CROSS SECTION EF

* CONDUIT NOT TO SCALE



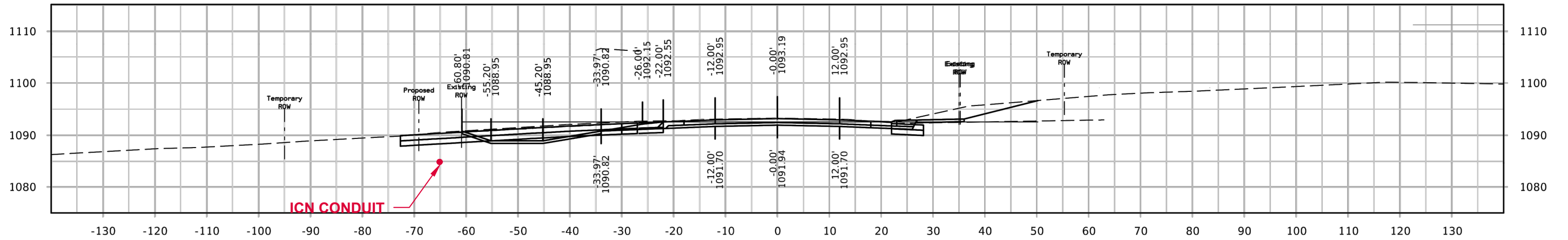
GRAPHIC SCALE



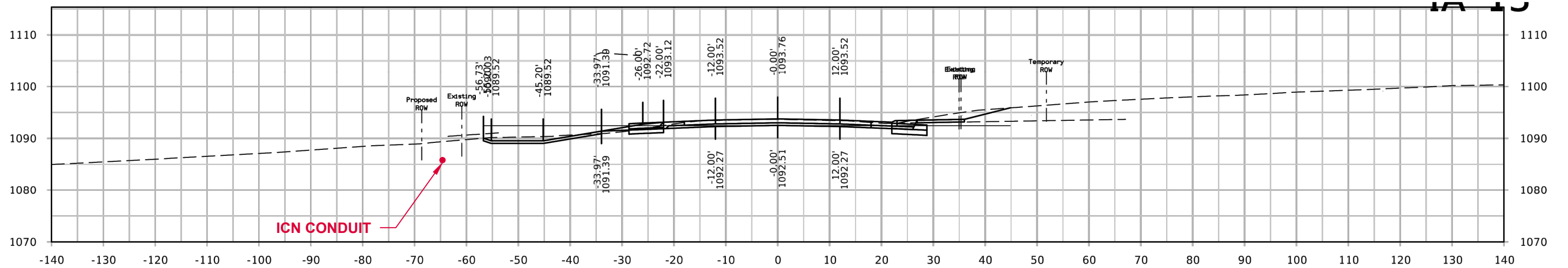
MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
1	FOR 60% REVIEW	09/25/2023
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4		

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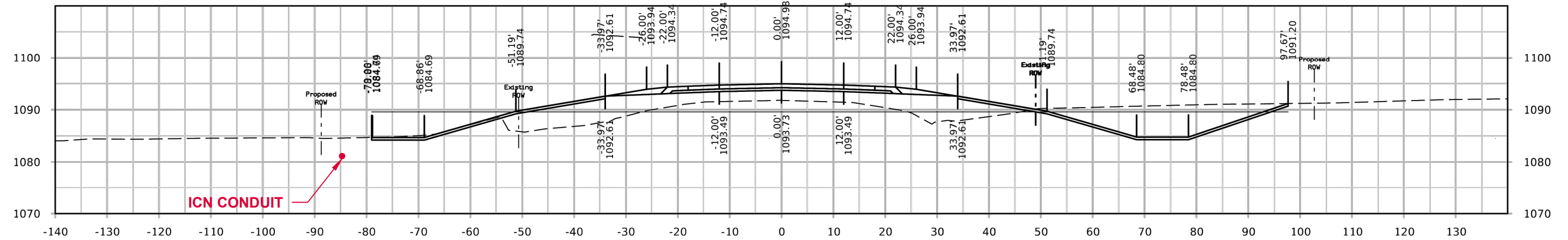
CROSS SECTION



STA. 1403+83.55
CROSS SECTION EK



STA. 1403+50.00
CROSS SECTION EJ

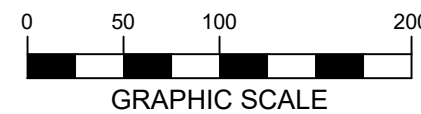


STA. 1390+75.00
CROSS SECTION EI

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING

* CONDUIT NOT TO SCALE

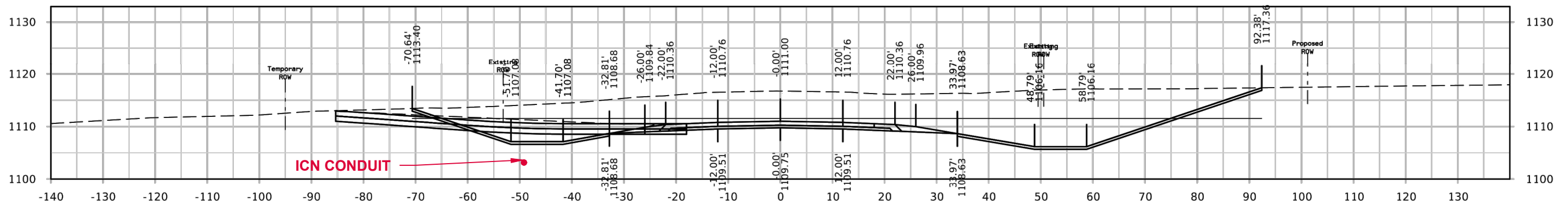


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			<p>IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
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3	FOR PERMIT PLANS	10/24/2023	
4			

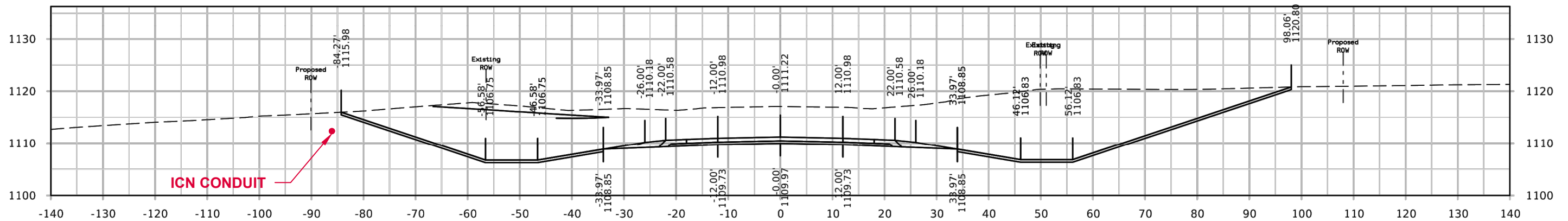
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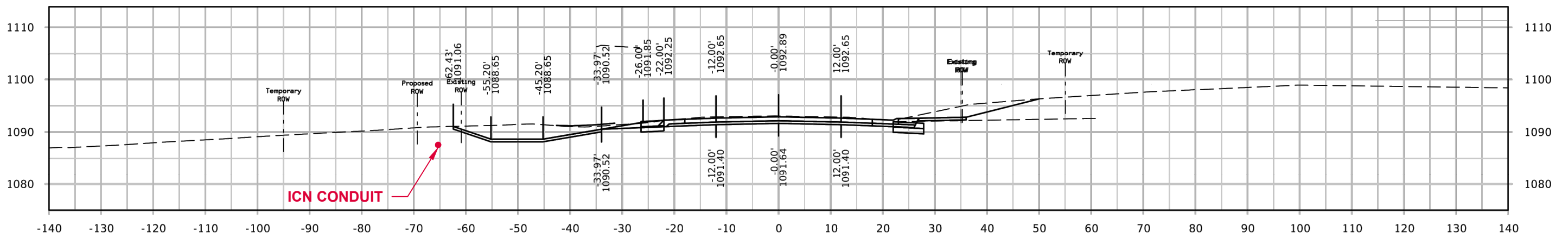
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



STA. 1427+46.12
CROSS SECTION EN

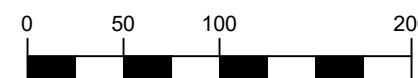


STA. 1427+00.00
CROSS SECTION EM



STA. 1404+00.00
CROSS SECTION EL

* CONDUIT NOT TO SCALE



GRAPHIC SCALE



MANCHESTER — DOT HWY 13 RELOCATION
FIBER INSTALLATION

1	FOR 60% REVIEW	09/25/2023
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3	FOR PERMIT PLANS	10/24/2023
4		

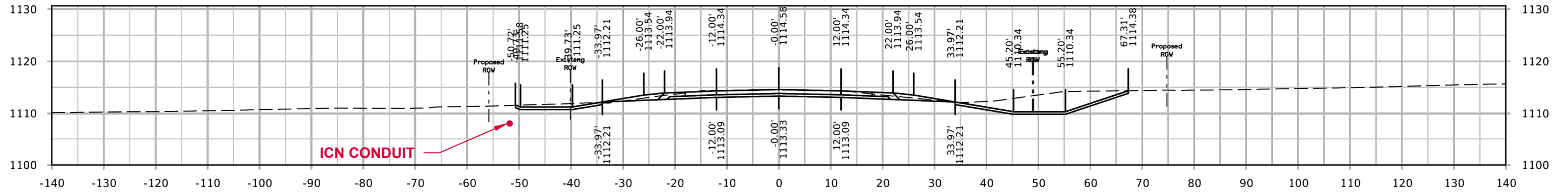
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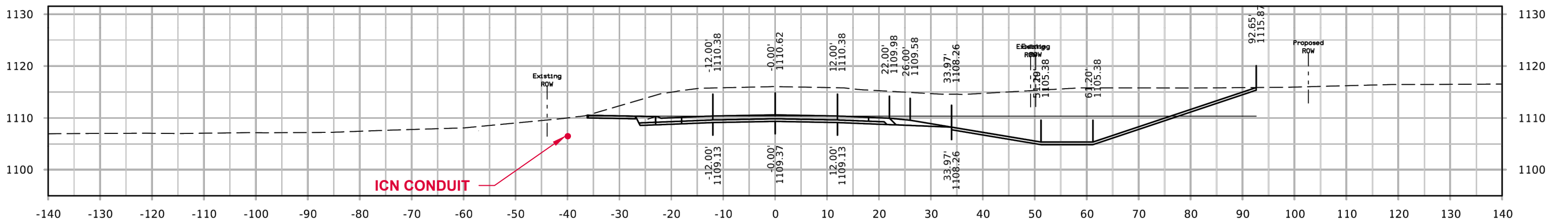
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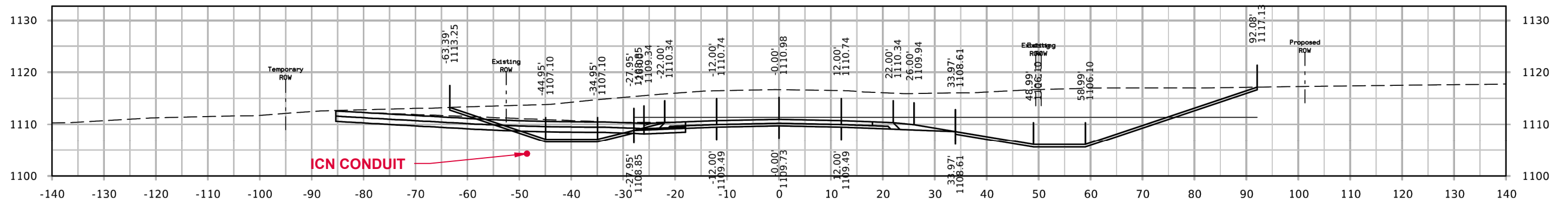
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



STA. 1439+50.00
CROSS SECTION EQ

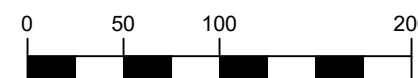


STA. 1428+00.00
CROSS SECTION EP



STA. 1427+50.00
CROSS SECTION EO

* CONDUIT NOT TO SCALE



MANCHESTER — DOT HWY 13 RELOCATION
FIBER INSTALLATION

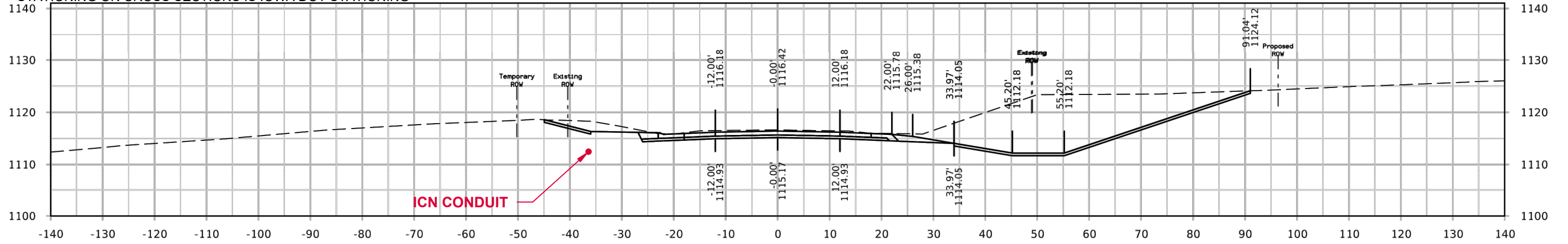
1	FOR 60% REVIEW	09/25/2023
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hbk icn
IOWA COMMUNICATIONS NETWORK
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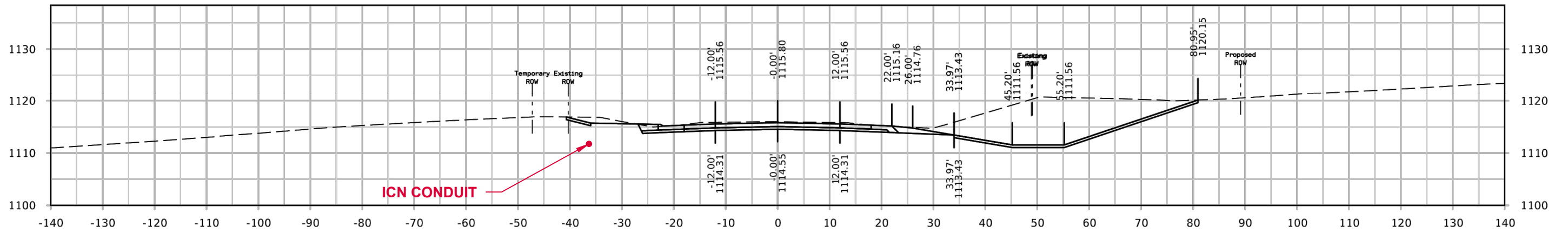
CROSS SECTION

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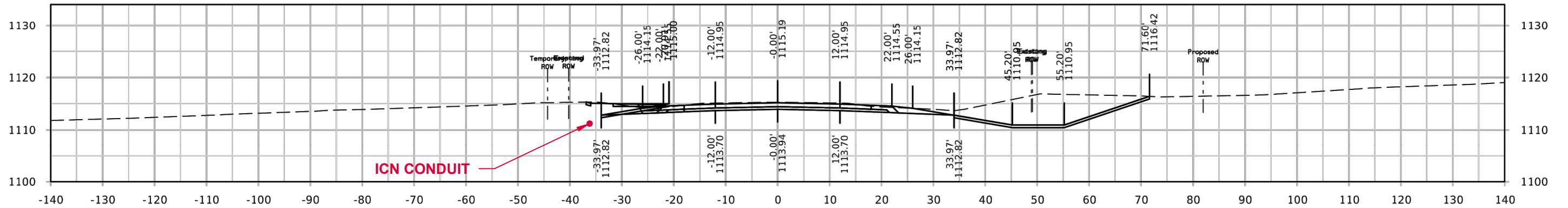
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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STA. 1441+00.00
CROSS SECTION ET

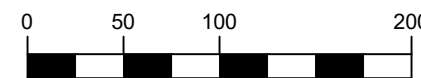


STA. 1440+50.00
CROSS SECTION ES



STA. 1440+00.00
CROSS SECTION ER

* CONDUIT NOT TO SCALE

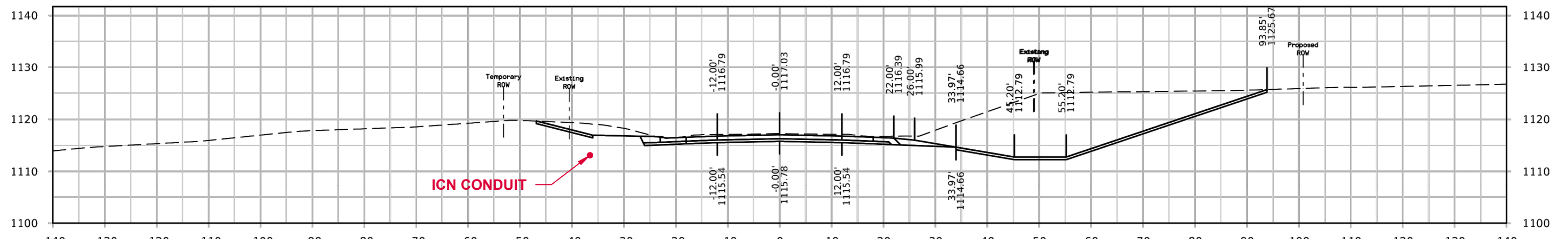
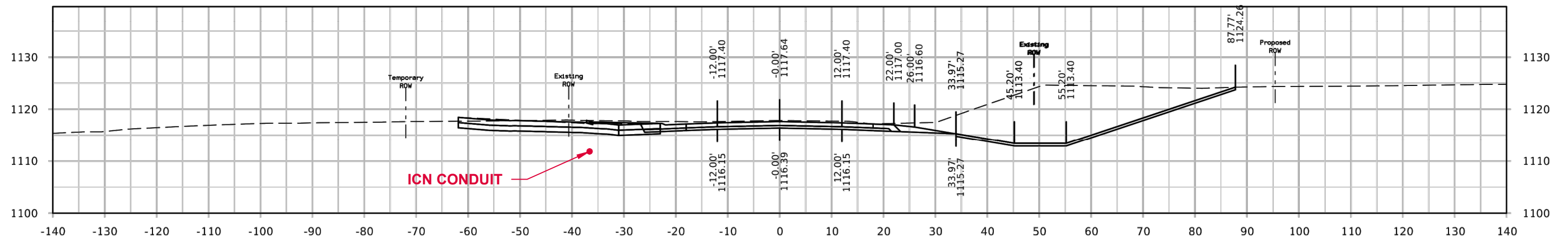
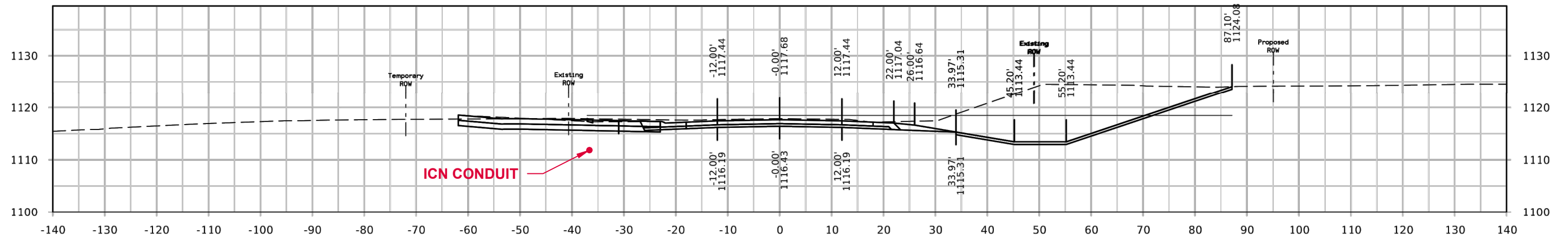


GRAPHIC SCALE

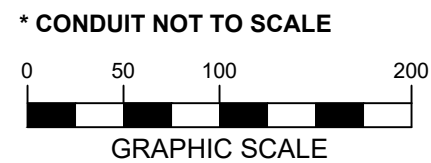


MANCHESTER — DOT HWY 13 RELOCATION FIBER INSTALLATION			<p>IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
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4			

CROSS SECTION



- NOTES:
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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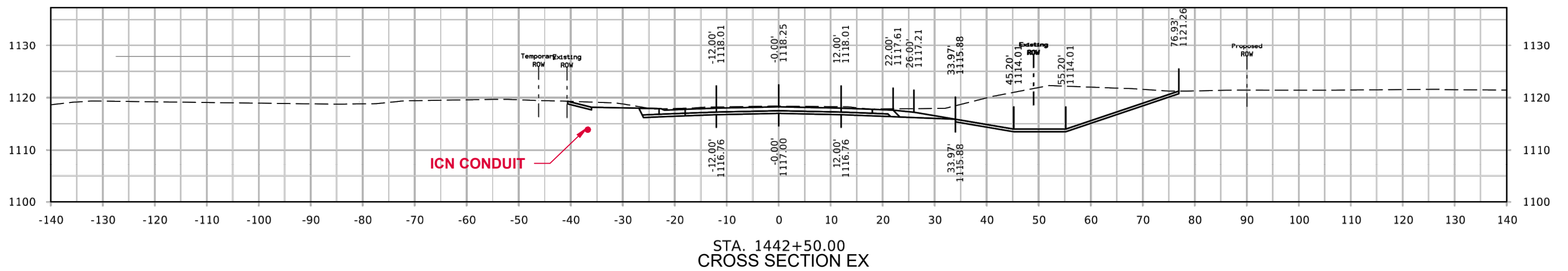
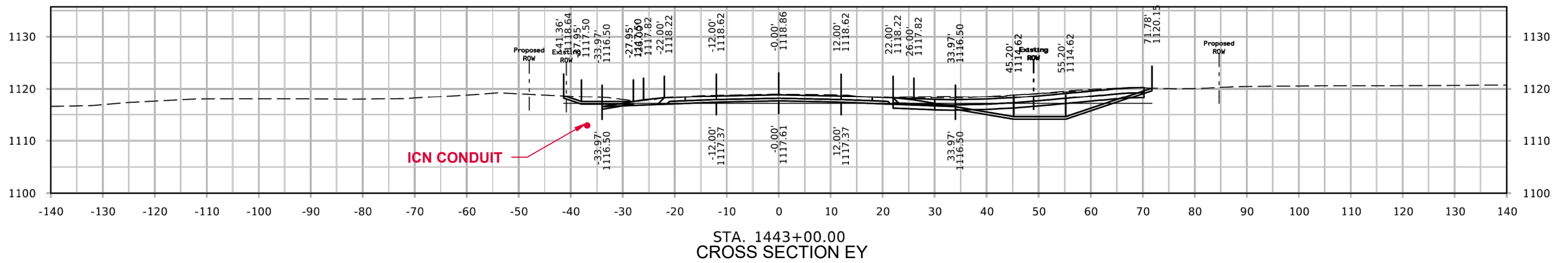
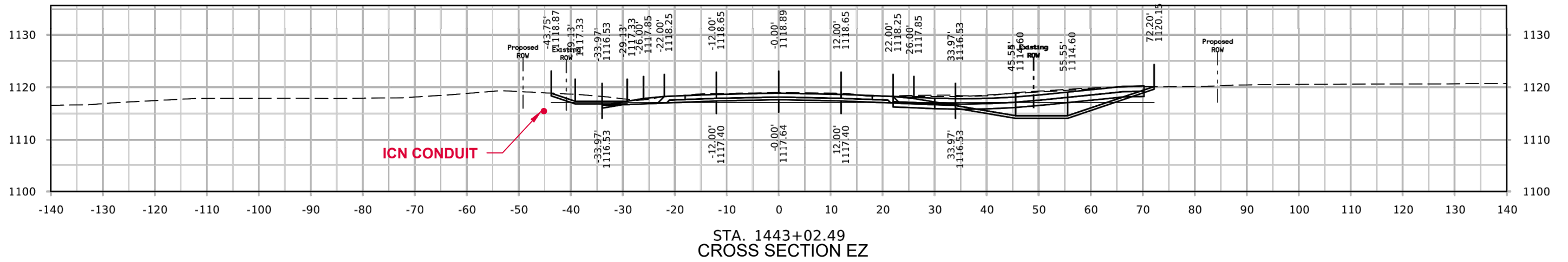
MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
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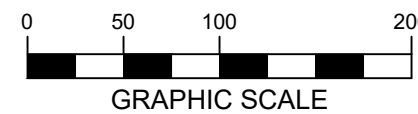
CROSS SECTION

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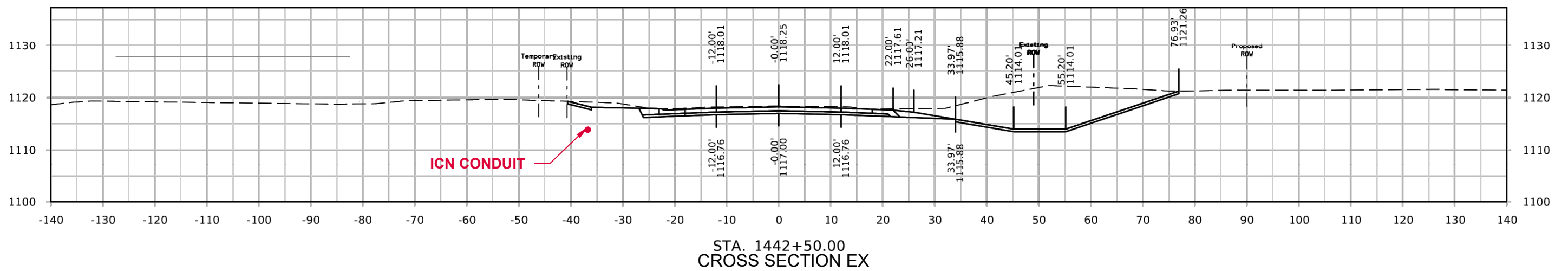
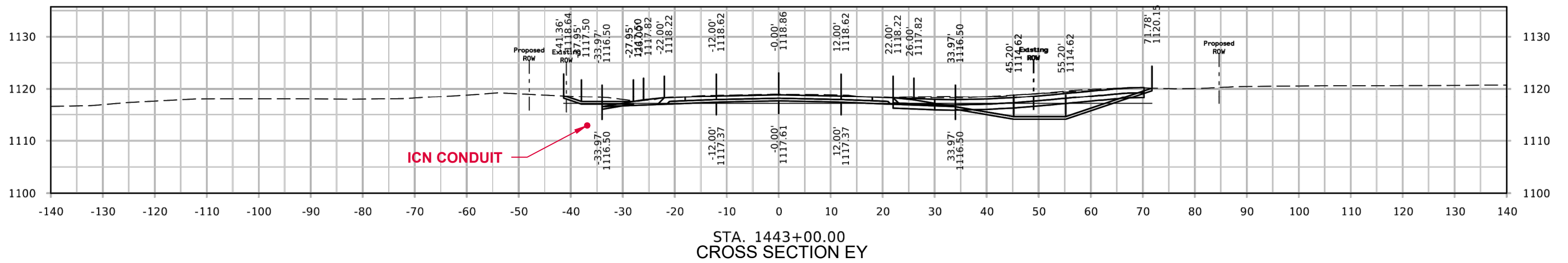
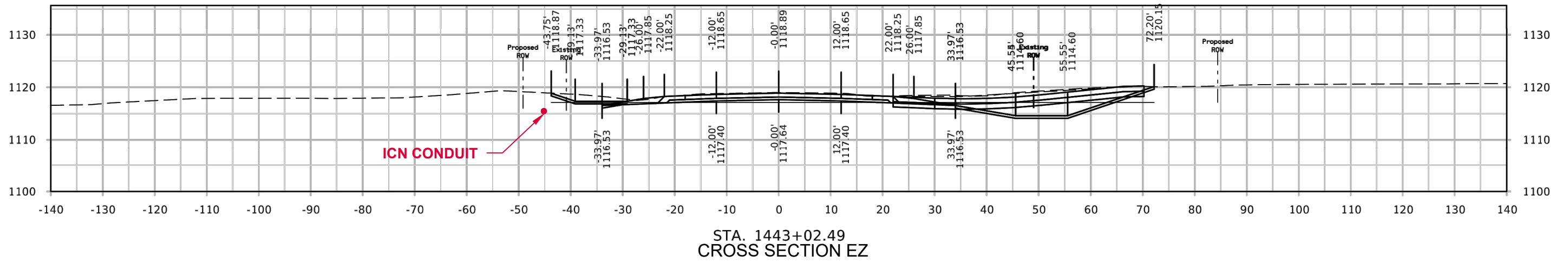


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			 IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION
1	FOR 60% REVIEW	09/25/2023	
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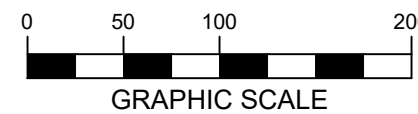
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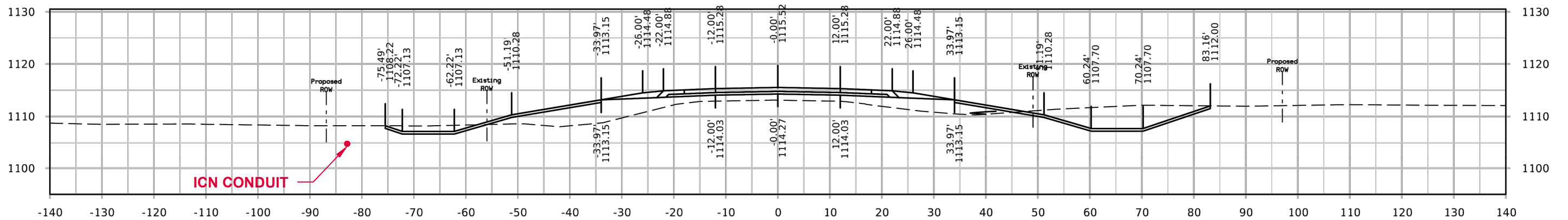
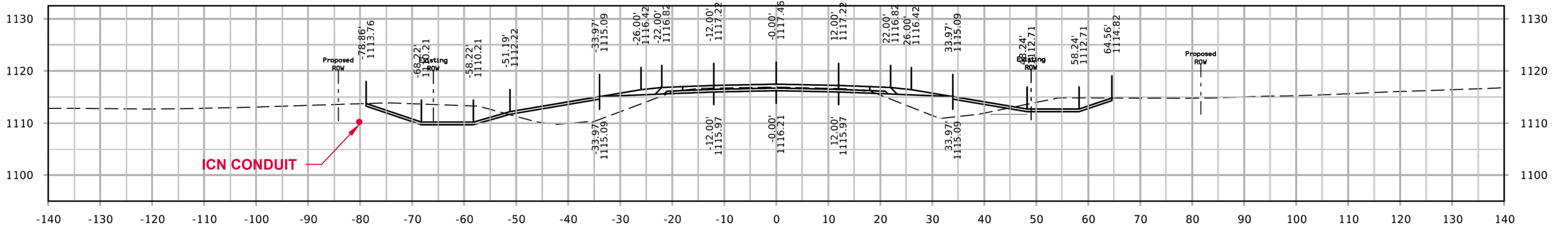
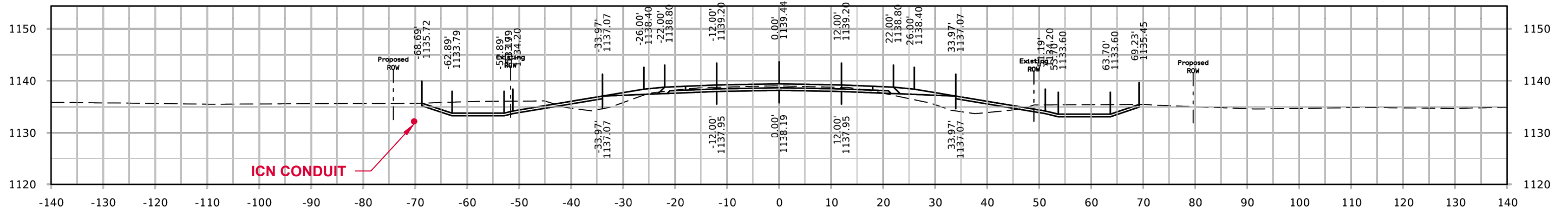


MANCHESTER – DOT HWY 13 RELOCATION FIBER INSTALLATION			
1	FOR 60% REVIEW	09/25/2023	
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3	FOR PERMIT PLANS	10/24/2023	
4			

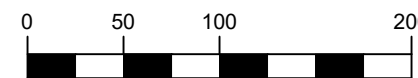
CROSS SECTION

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GRAPHIC SCALE

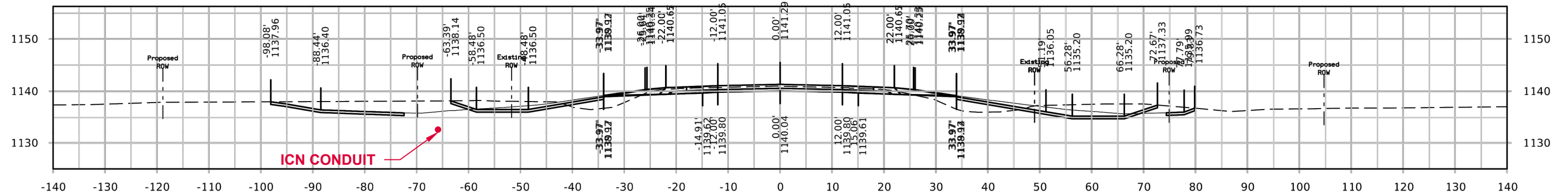
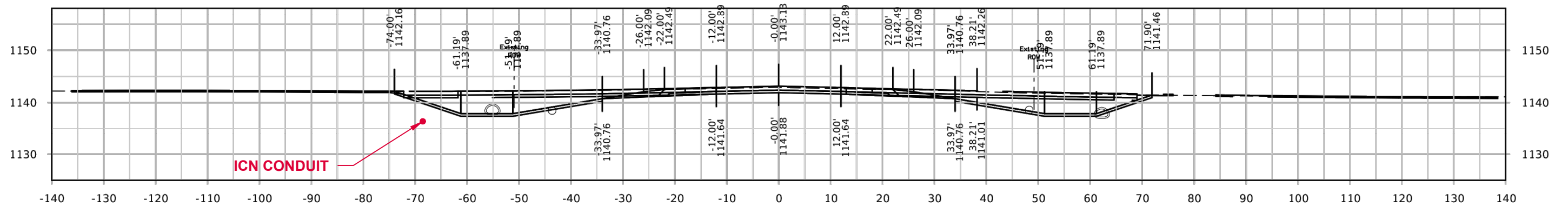
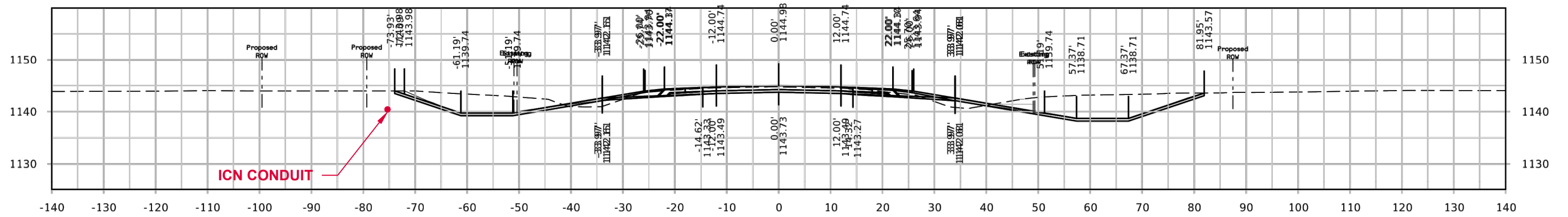


MANCHESTER – DOT HWY 13 RELOCATION			hbk ICN
FIBER INSTALLATION			
1	FOR 60% REVIEW	09/25/2023	IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION
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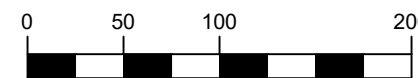
CROSS SECTION

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GRAPHIC SCALE



MANCHESTER — DOT HWY 13 RELOCATION
FIBER INSTALLATION

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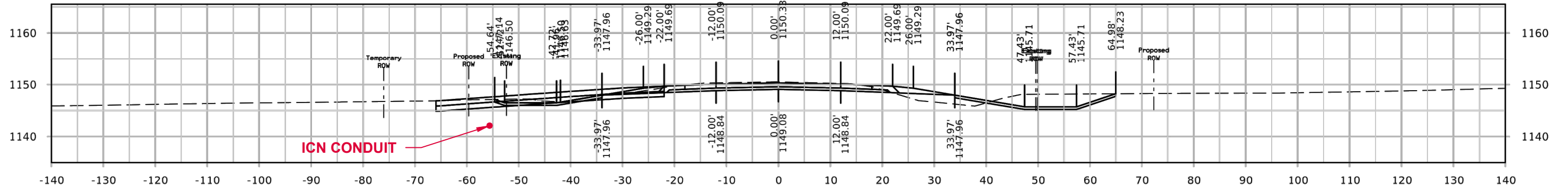
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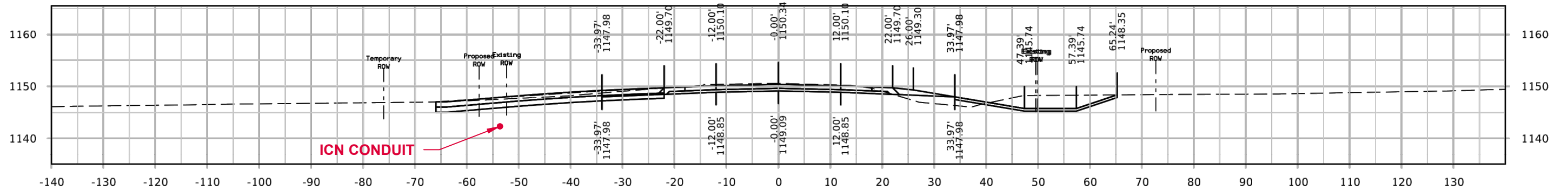
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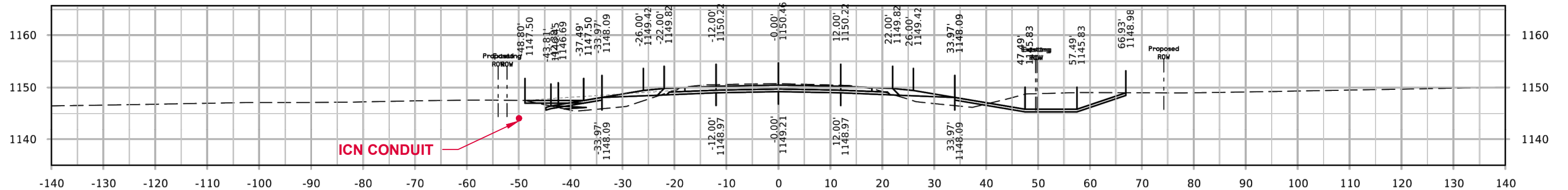
1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
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STA. 1497+00.00
CROSS SECTION FI



STA. 1496+90.07
CROSS SECTION FH



STA. 1496+50.00
CROSS SECTION FG

* CONDUIT NOT TO SCALE



GRAPHIC SCALE

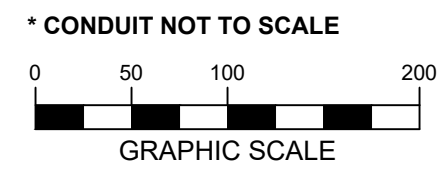
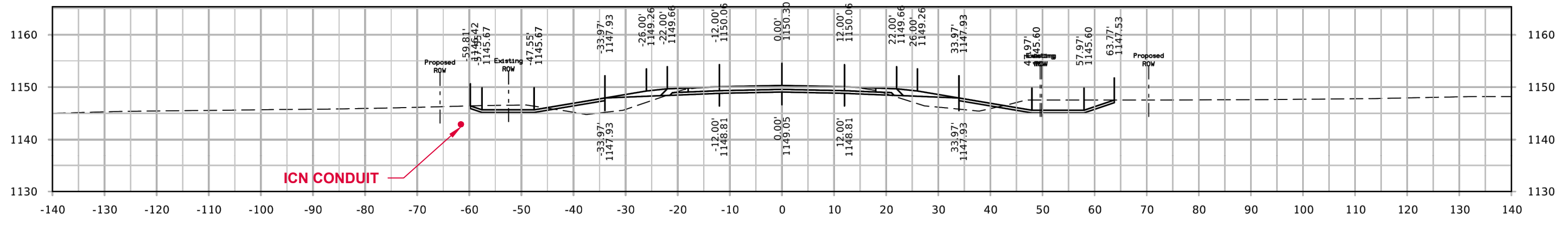
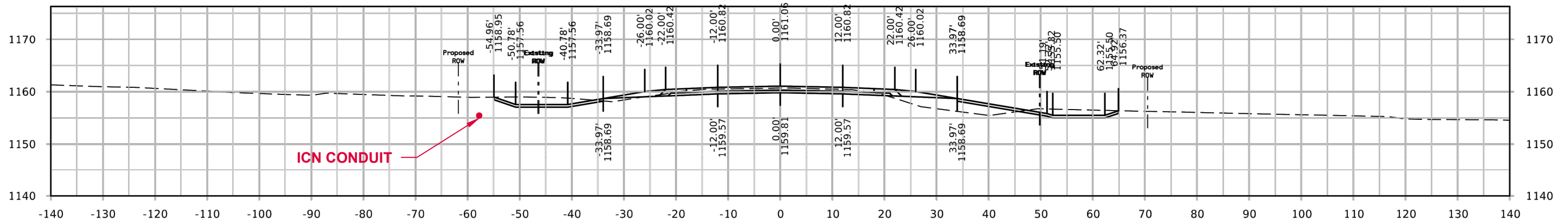


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CROSS SECTION

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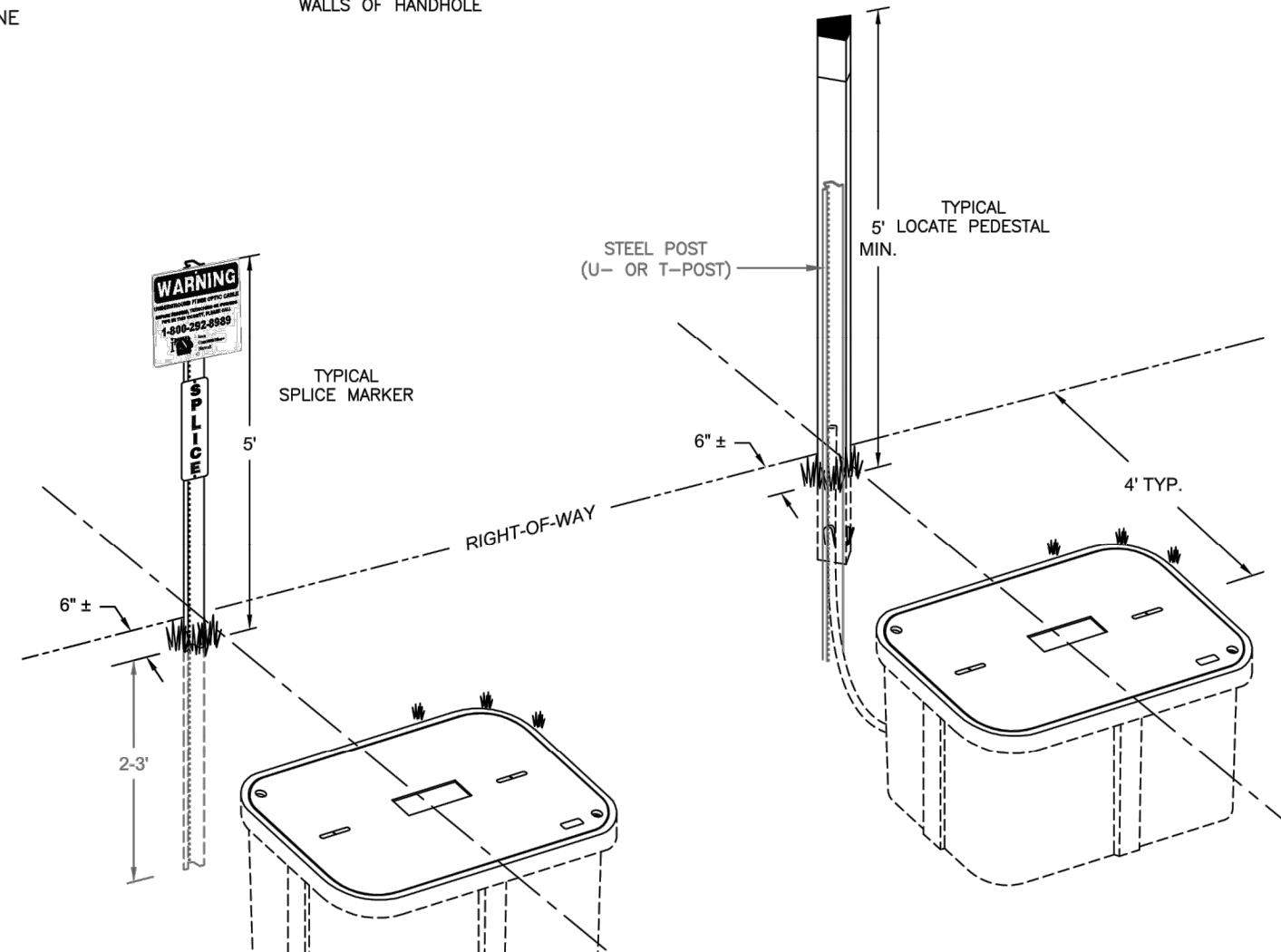
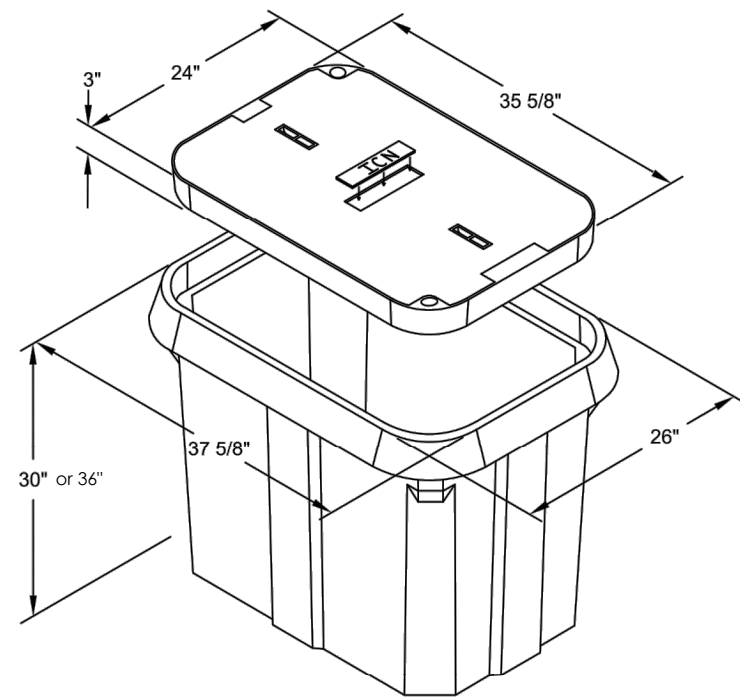
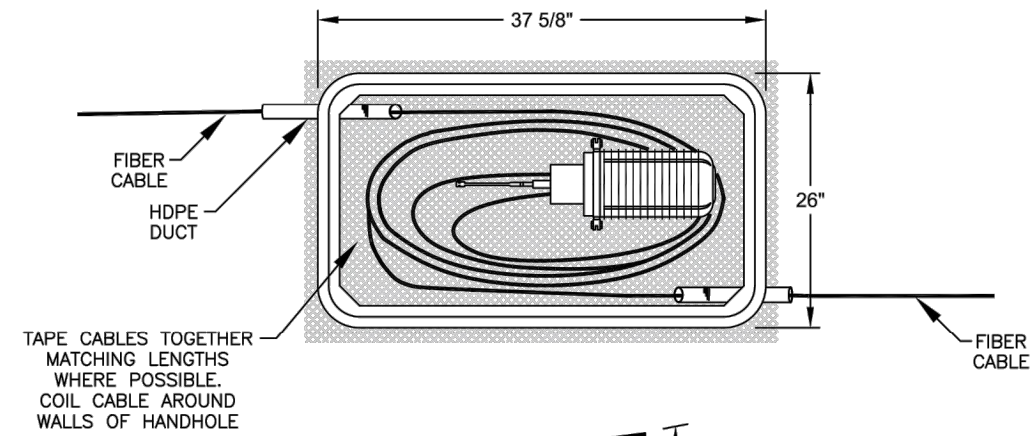
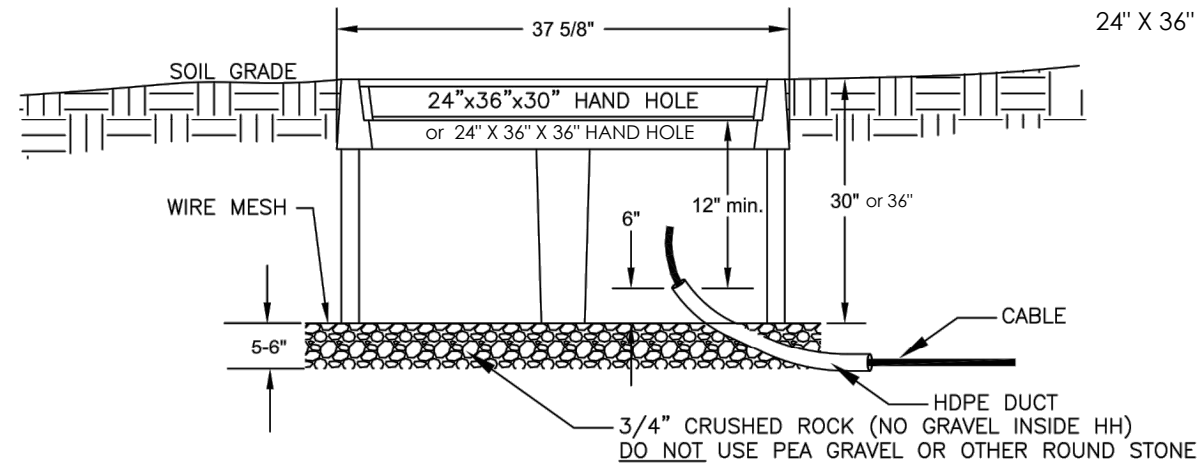


MANCHESTER – DOT HWY 13 RELOCATION		
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HANDHOLE PLACEMENT TYPICAL

24" X 36" X 30" HAND HOLE
OR
24" X 36" X 36" HAND HOLE

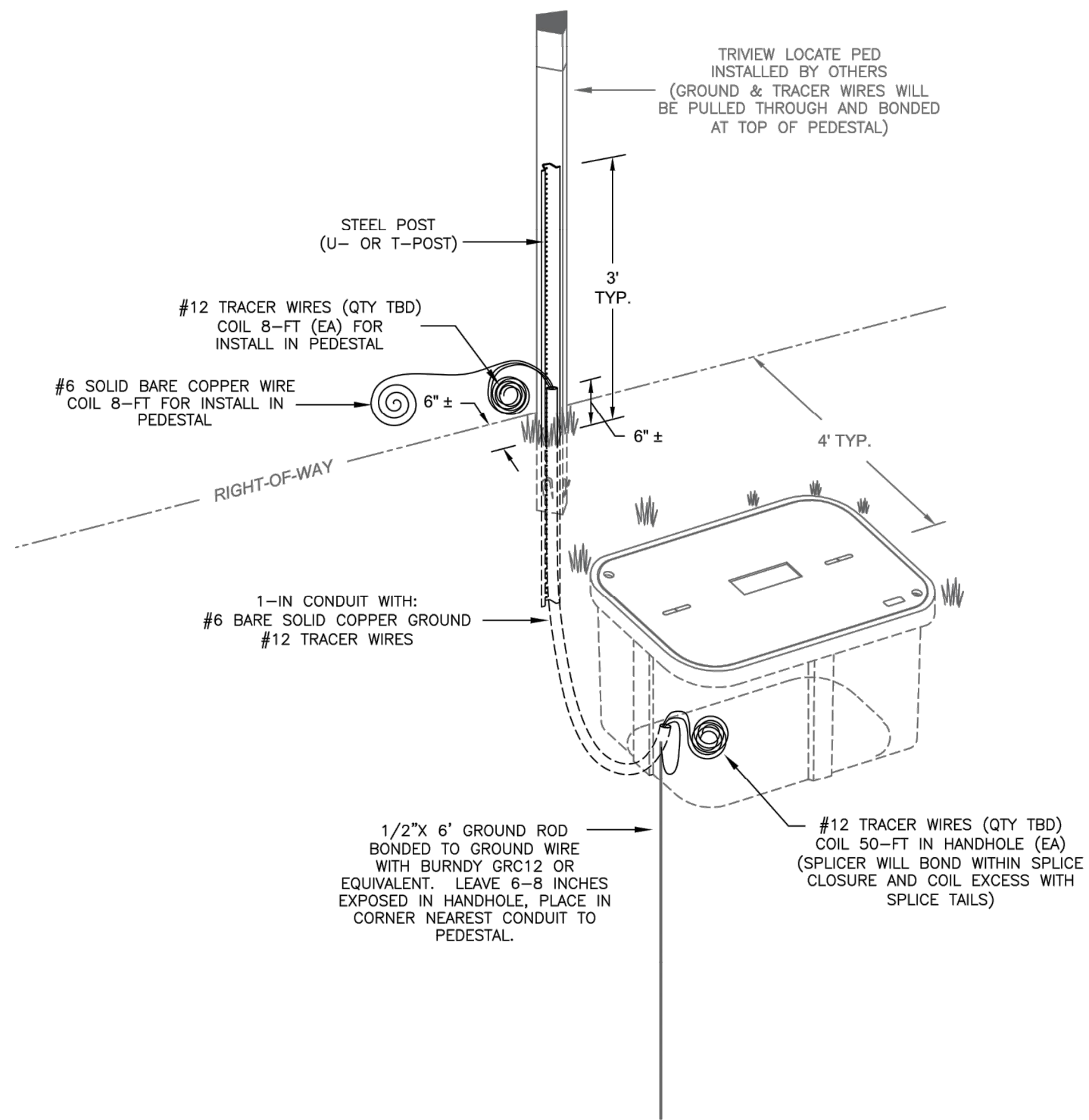


MANCHESTER - DOT HWY 13 RELOCATION
FIBER INSTALLATION

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hbk **ICN**

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CONTRACTOR TO PROVIDE AND PLACE THE FOLLOWING MATERIALS IN PREPARATION FOR THE INSTALLATION OF A TRIVIEW LOCATE PEDESTAL (INSTALLED BY OTHERS):

STEEL POST

"U" OR "T" POST
 LEAVE 3 FEET EXPOSED
 BURY A MINIMUM OF 1 FEET
 PLACE NEAR OR AT ROW UNLESS OTHERWISE DIRECTED

GROUND ROD

1/2-IN X 6-FT SOLID COPPER GROUND ROD
 PLACE IN CORNER OF HANDHOLE NEAREST CONDUIT TO PEDESTAL
 LEAVE 6-IN ± EXPOSED

GROUND WIRE

#6 BARE SOLID COPPER WIRE
 BOND TO GROUND ROD WITH BURNDY GRC12 OR EQUIVALENT
 ROUTE THROUGH CONDUIT TOWARDS PEDESTAL
 COIL 8-FT AT CONDUIT EXIT TO BE BONDED TO PEDESTAL BY OTHERS

CONDUIT

1 INCH (MUST BE OF SUFFICIENTLY SMALL O.D. TO FIT INSIDE PEDESTAL)
 CONDUIT MUST BE CONTINUOUS AND NON-CORROSIVE (HDPE OR PVC, E.G.)
 ROUTE FROM BASE OF HANDHOLE TO BASE OF PEDESTAL
 LEAVE 6-IN OF CONDUIT EXPOSED ABOVE GRADE (TO BE PLACED WITHIN PEDESTAL)

TRACER WIRE

#12 TRACER WIRES
 TYPICALLY 2 OR 3 WIRES ARE REQUIRED*
 COIL 50-FT (EA) IN BASE OF HANDHOLE TO BE BONDED IN SPLICE CLOSURE BY OTHERS
 COIL 8-FT AT CONDUIT EXIT TO BE BONDED TO PEDESTAL BY OTHERS
 *SEPARATE #12 TRACER WIRES ARE REQUIRED FOR EACH DIRECTION AND/OR CABLE.
 QUANTITY OF TRACER WIRES SHALL BE PROJECT SPECIFIC AND DEFINED BY THE ICN
 OSP ENGINEER WITHIN THE STATEMENT OF WORK, PLEASE VERIFY. AS A GENERAL
 RULE, 150-FT OF #12 TRACER WIRE SHOULD BE SUFFICIENT FOR ANY PROJECT.

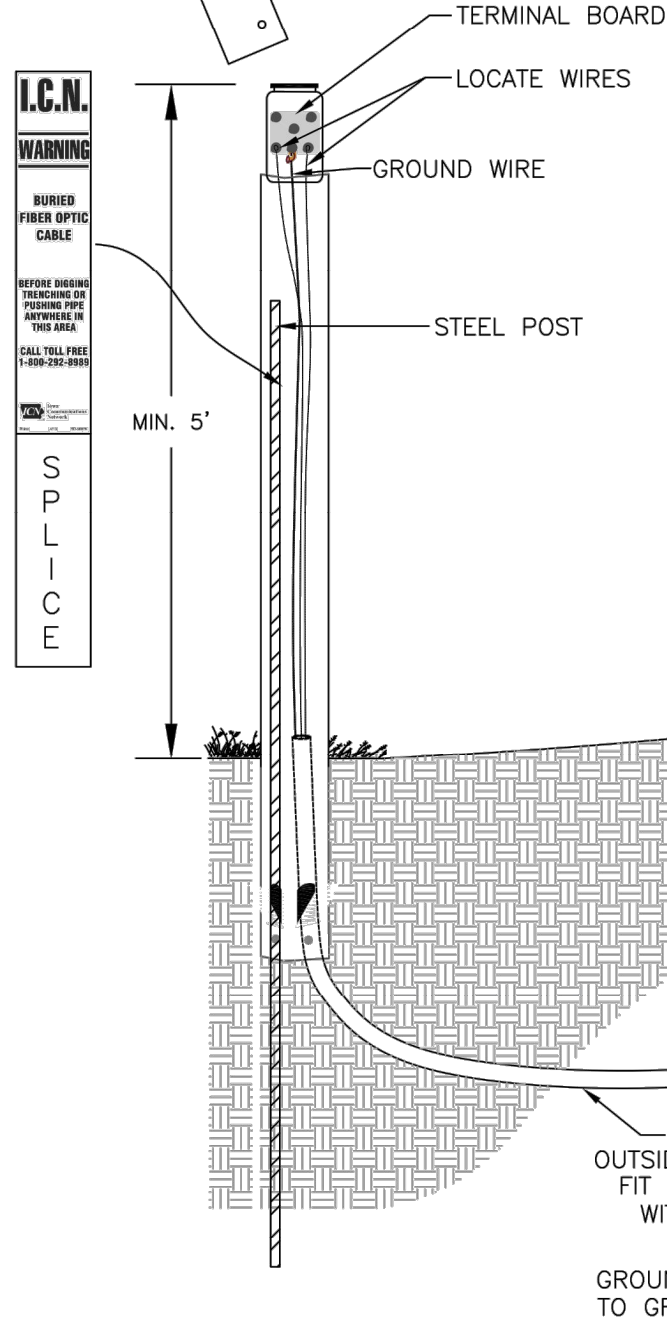
USE TRACER WIRE THAT IS RATED FOR DIRECT BURIAL WHERE REQUIRED. TRACER WIRE SHALL BE #12 AWG, SOLID HF CCS 30 MIL HDPE HIGH FLEX TRACER WIRE: EITHER SOLID COPPER OR COPPER CLAD STEEL.

CONSTRUCTION DOCUMENT



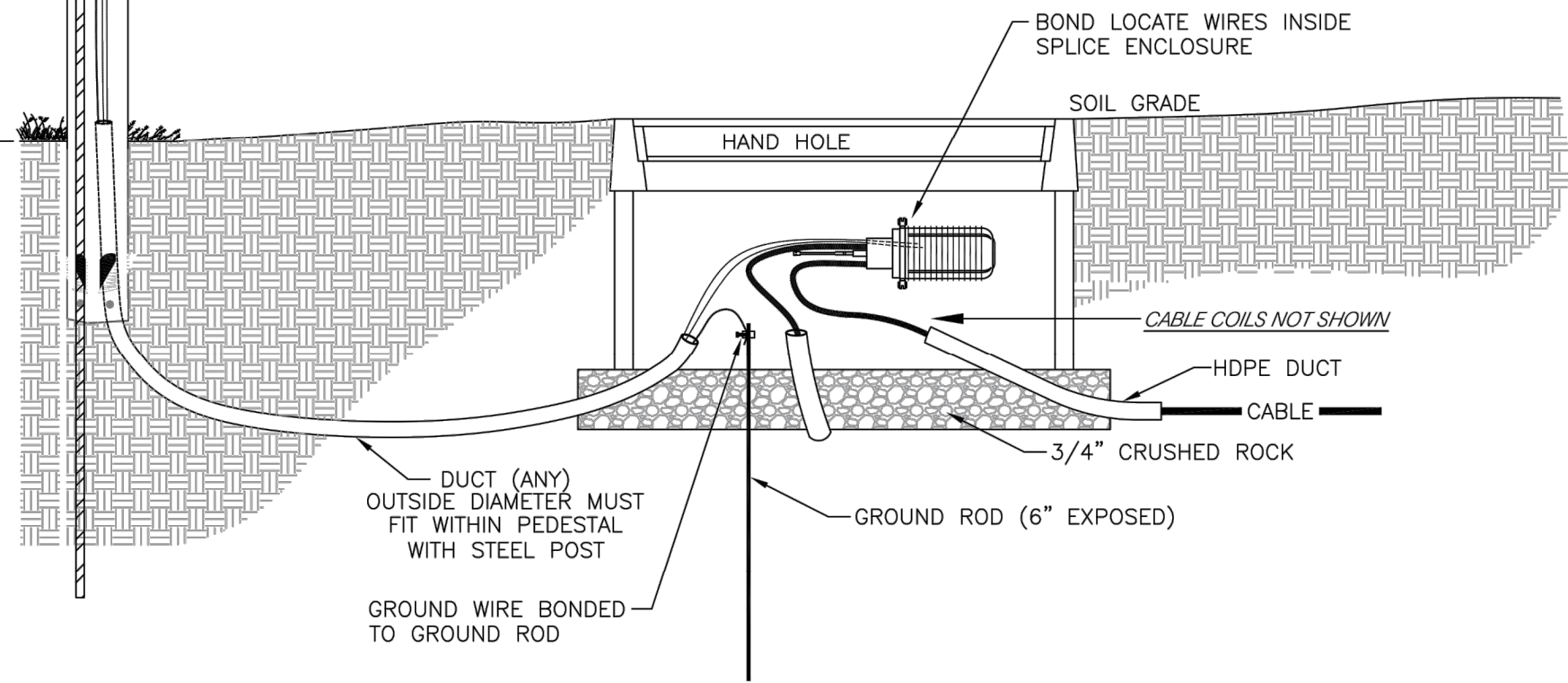
MANCHESTER – DOT HWY 13 RELOCATION			
FIBER INSTALLATION			
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TYPICAL INSTALLATION OF TRI-VIEW LOCATE PEDESTAL



NOTES:

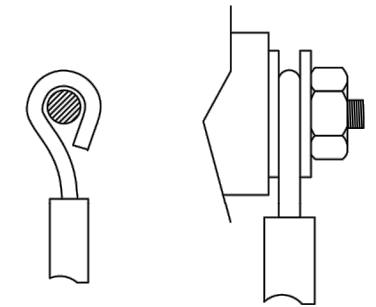
- LOCATE (TRACER) WIRE: #10 or #12 AWG SOLID COPPER WIRE
- GROUND WIRE: #6 OR #8 AWG SOLID BARE COPPER WIRE
- GROUND ROD: INSTALL IN BASE OF HANDHOLE, CORNER NEAREST LOCATE PEDESTAL, LEAVE ~6-IN EXPOSED ABOVE GRAVEL
- ONE LOCATE WIRE PER FIBER CABLE AT SPLICE ENCLOSURE
- LOCATE WIRE(S) TO BE BONDED INSIDE SPLICE ENCLOSURE WITH 3M SCOTCHLOK SHIELD BONDING KIT
- LOCATE WIRE(S) TO BE ROUTED OUTSIDE OF SPLICE ENCLOSURE WITH FOSC CLOSURE SEALING KIT
- LOCATE WIRE(S) TO BE ROUTED VIA DUCT TO LOCATE PEDESTAL AND TERMINATED AT TERMINAL BOARD
- GROUND LOCATE PEDESTAL TO GROUND ROD WITH SOLID BARE COPPER WIRE AND GROUND CLAMP
- SECURE LOCATE PEDESTAL BY PLACING OVER STEEL POST
- SET PEDESTAL AT OR NEAR RIGHT-OF-WAY, IF POSSIBLE
- MINIMUM HEIGHT OF INSTALLED PEDESTAL MUST BE 5 FEET



TRACER WIRE TERMINATION DETAIL

Termination of the locate wire at either a pedestal, puck, or in a splice case shall be made in the following fashion:

Strip off a minimum of 3/4" of insulation. Using a needle nose pliers bend a wire "eyelet" on the wire end in a clockwise manner. Use a flat washer on both sides of the wire eyelet when cinching it down on the stud. Flat washers shall be of appropriate size such that the hole matches the diameter of the stud and the outside diameter of the flat washer matches reasonably close to the eyelet diameter.



CONSTRUCTION DOCUMENT



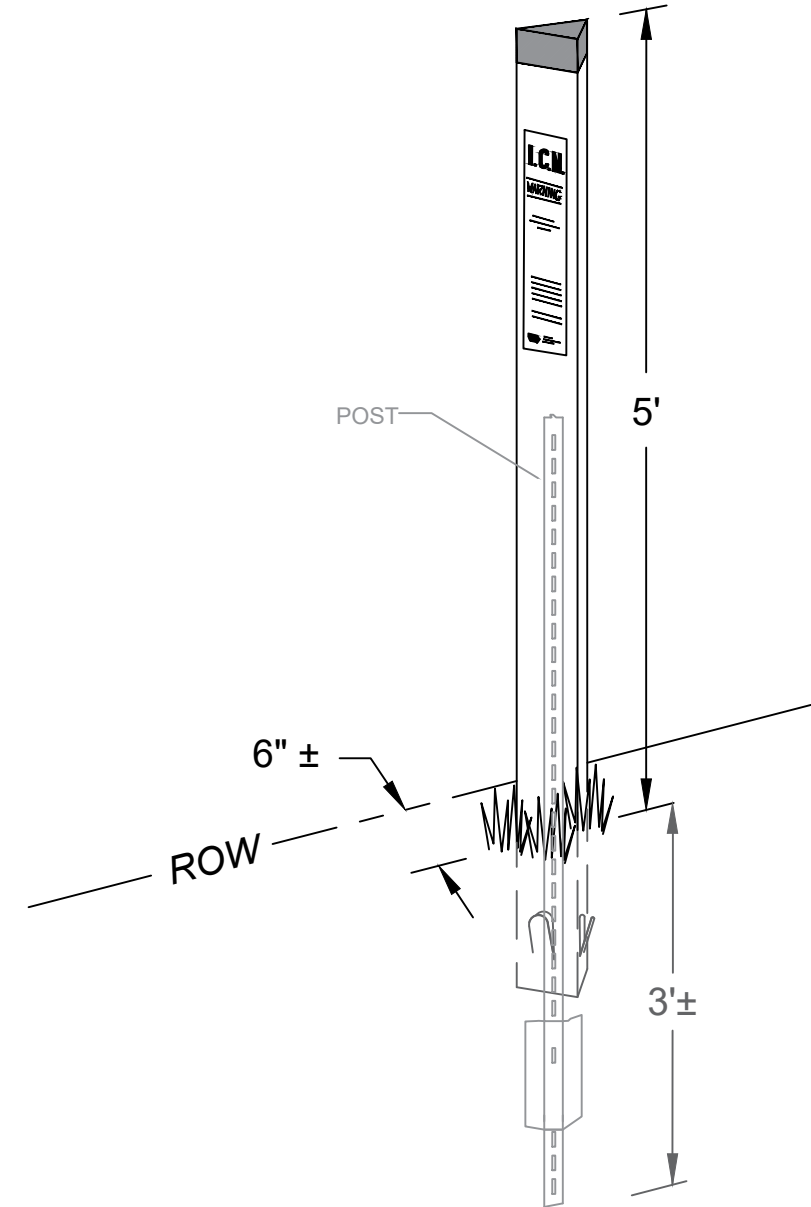
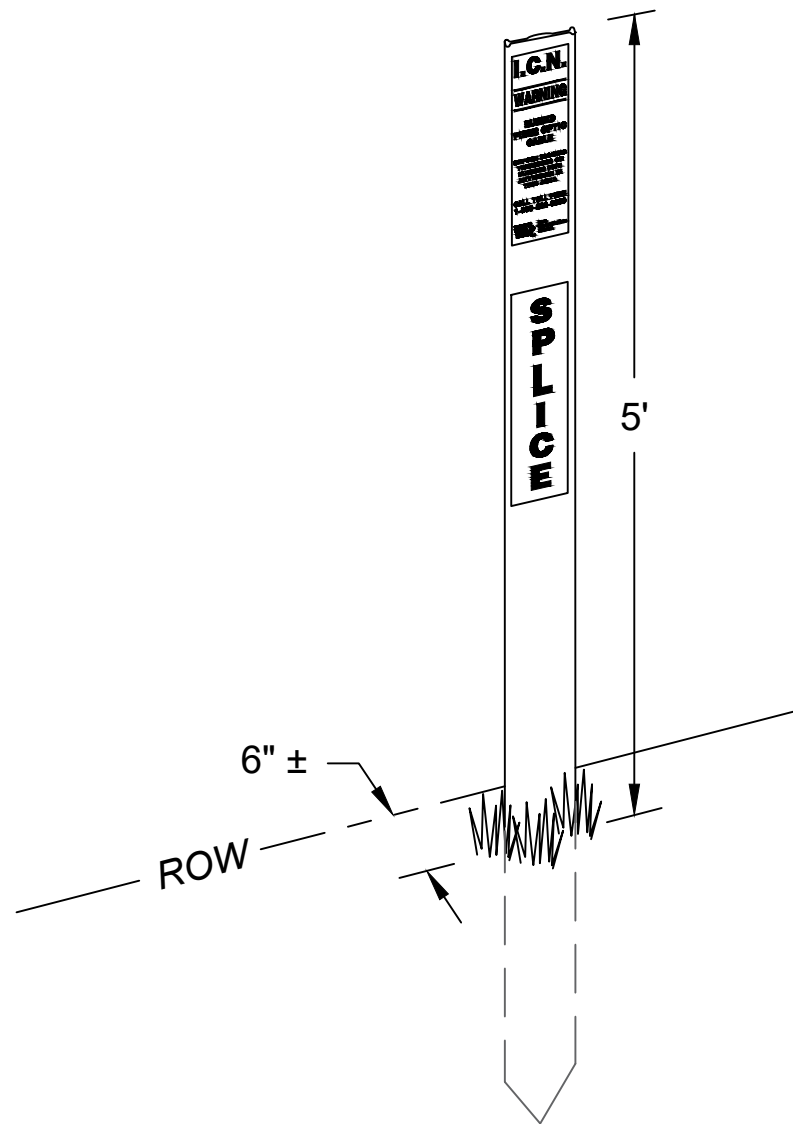
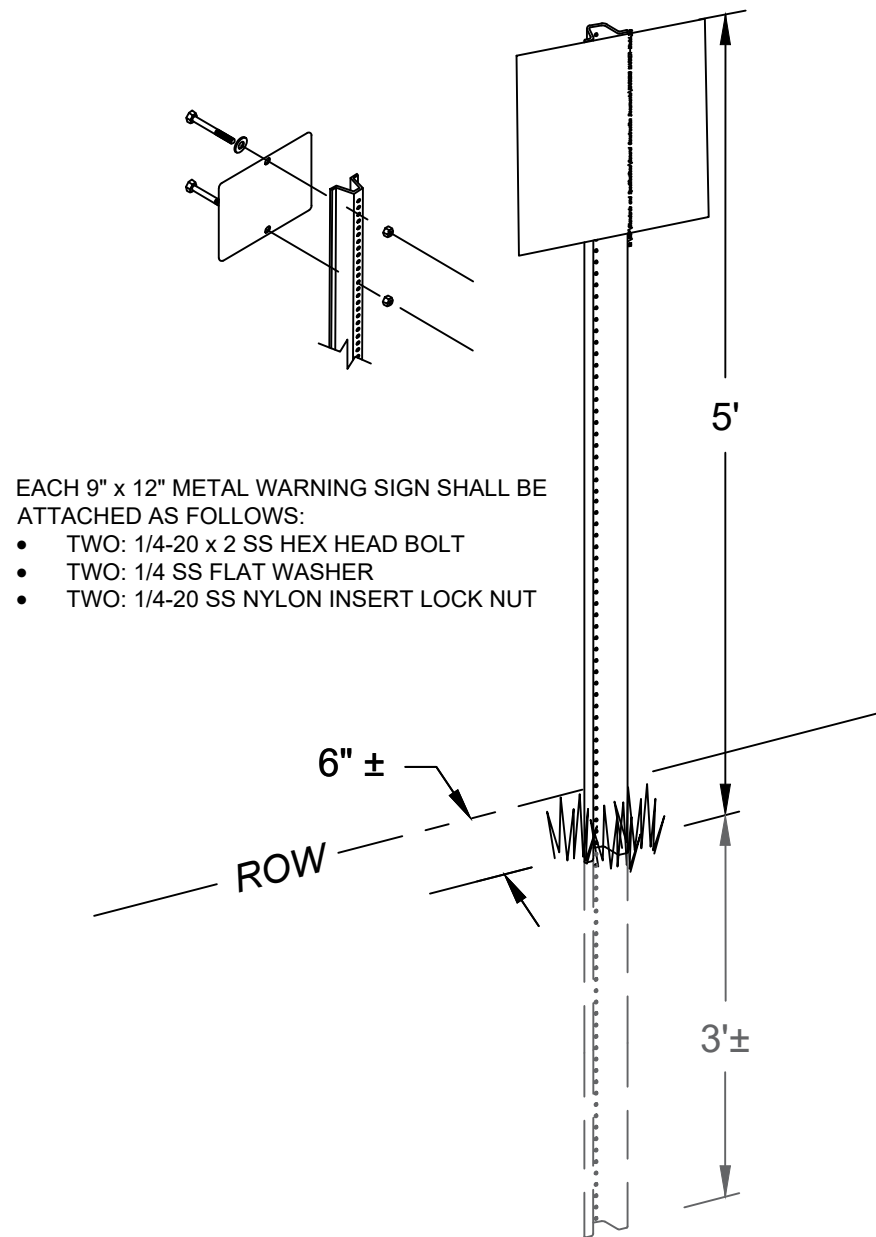
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WARNING MARKER INSTALLATION DETAIL

METAL SIGN & U-CHANNEL POST

FIBERGLASS MARKER

TRIVIEW MARKER



CONSTRUCTION DOCUMENT

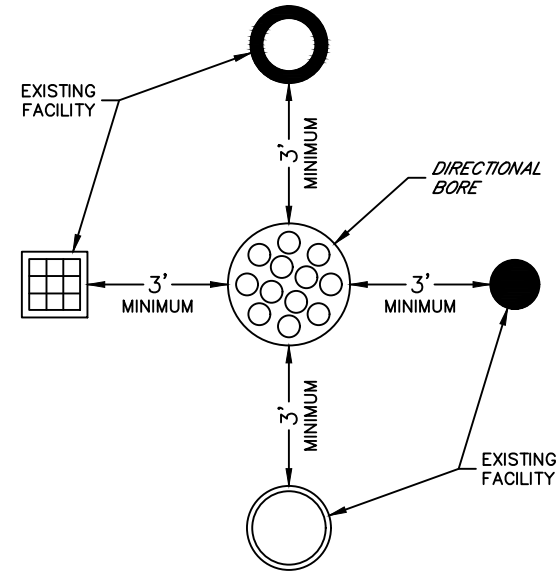


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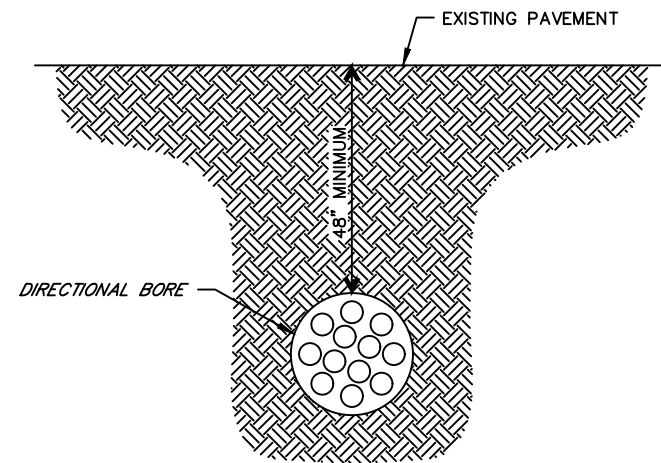
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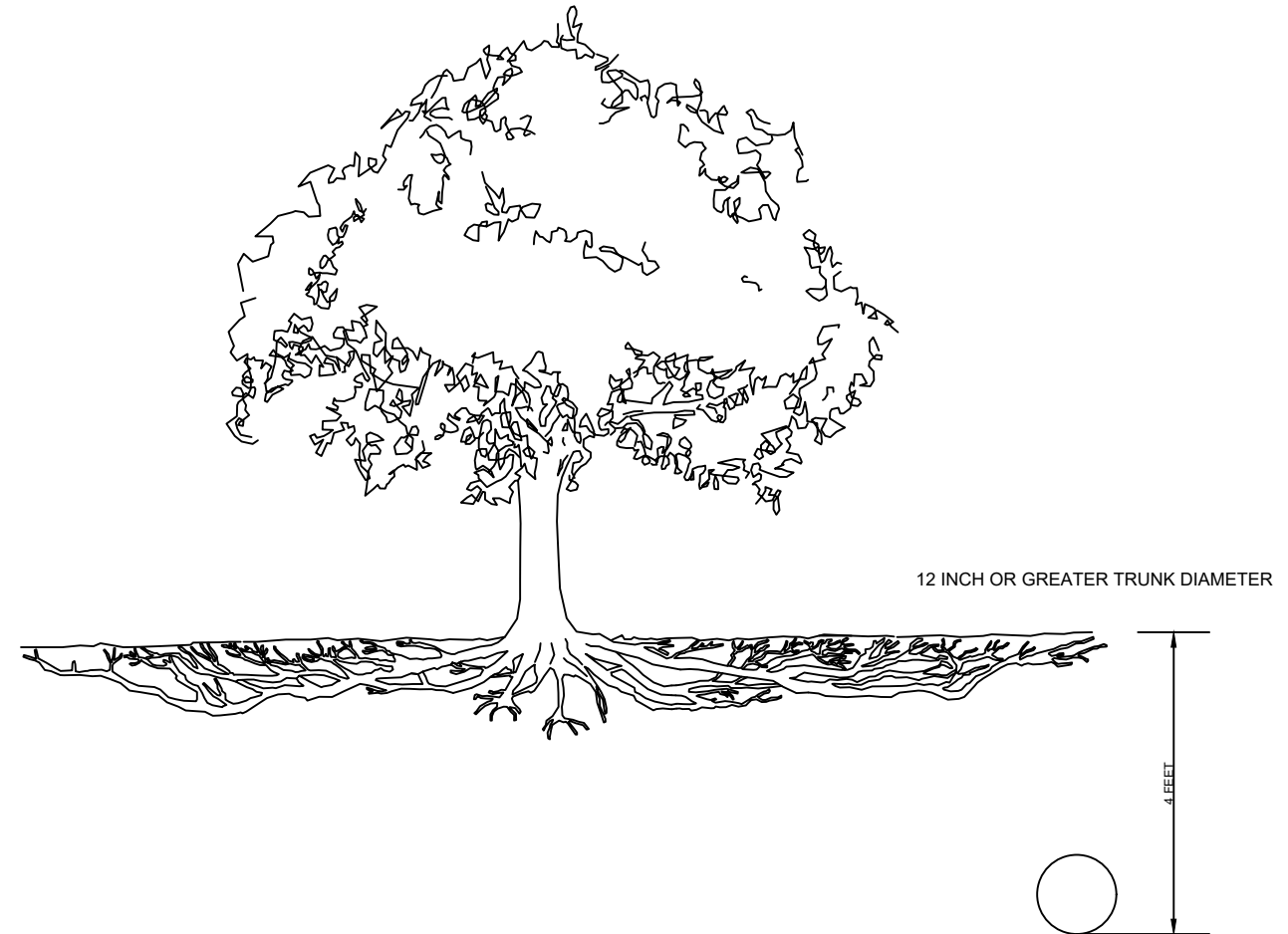


MAINTAIN A MINIMUM OF AT LEAST 3 FEET OF SEPARATION IN ANY DIRECTION BETWEEN DIRECTIONAL BORE AND ALL EXISTING FACILITIES.

UTILITY SEPARATION DETAIL



DIRECTIONAL BORING DETAIL



TREE PROTECTION - TUNNELING

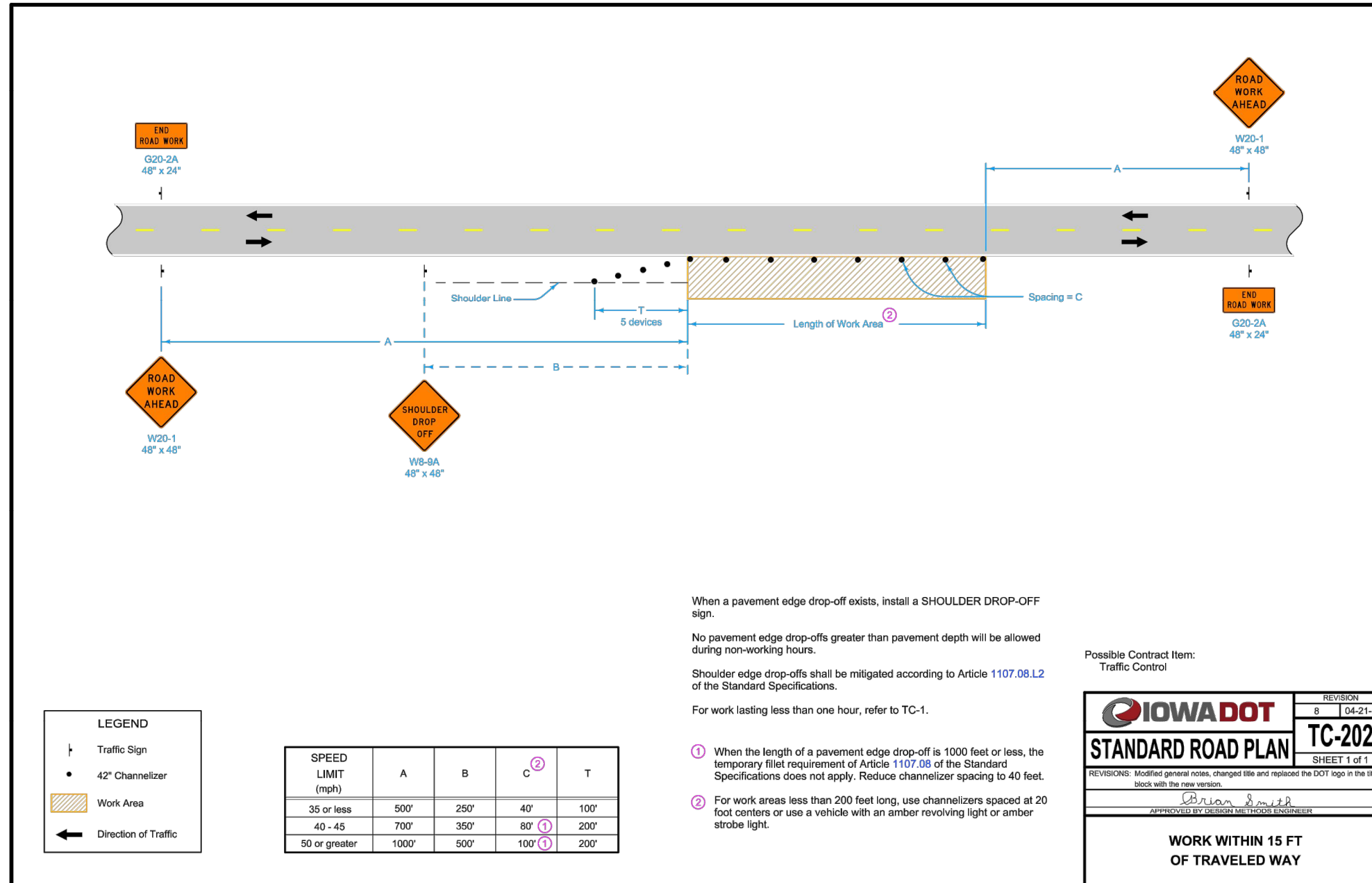


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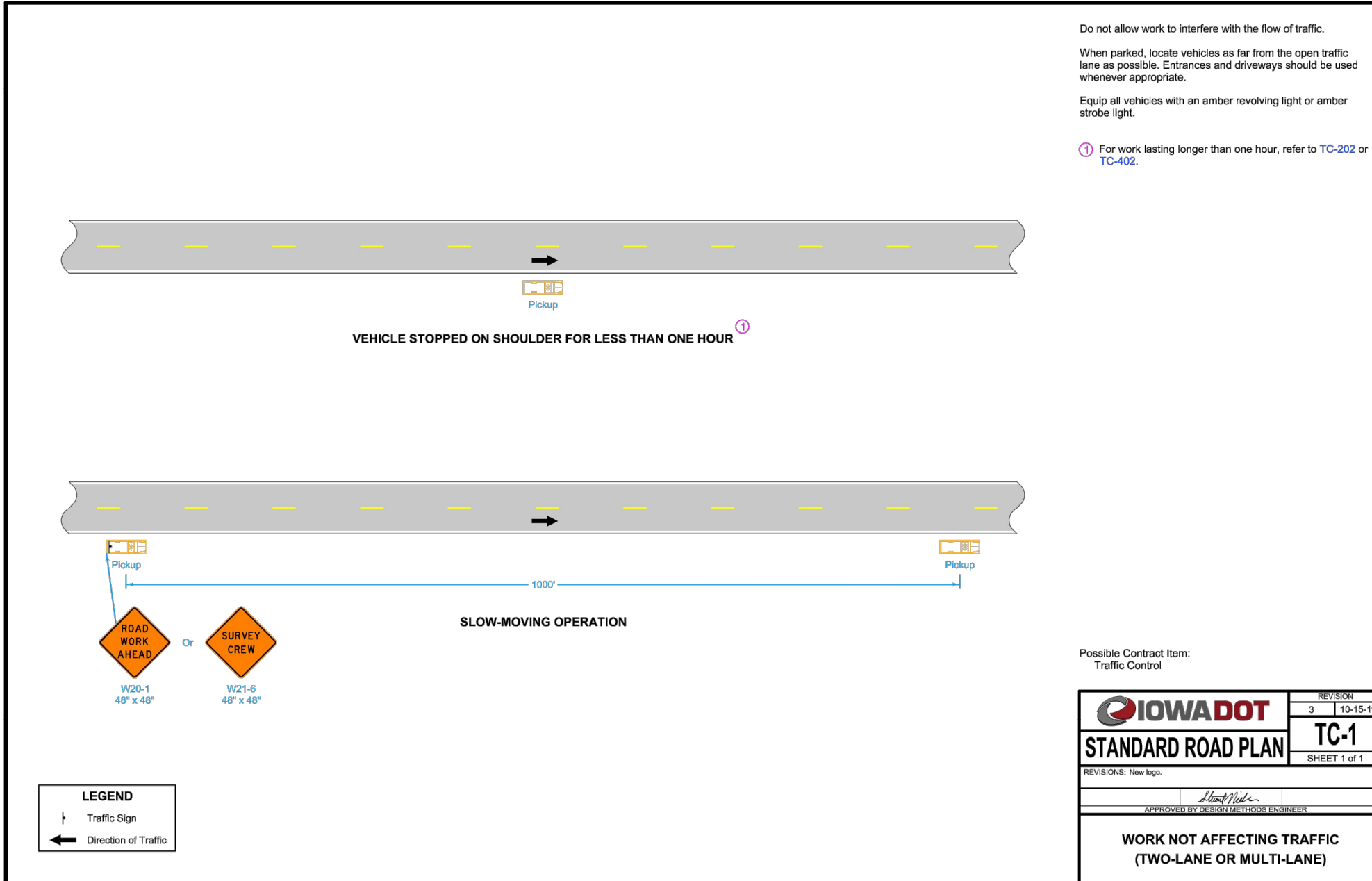
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LEGEND
 ↑ Traffic Sign
 ← Direction of Traffic

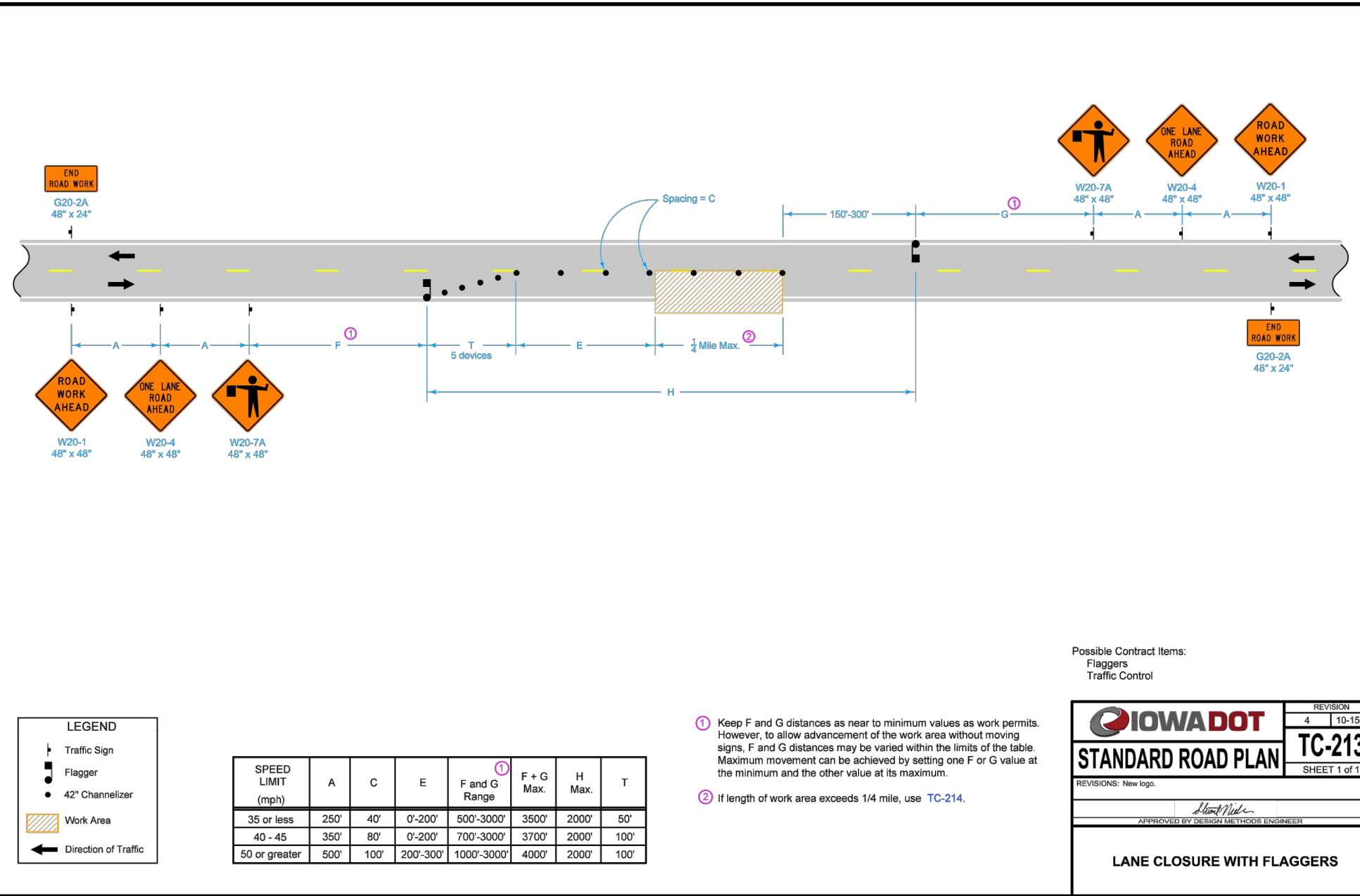
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LEGEND

- Traffic Sign
- Flagger
- 42" Channelizer
- Work Area
- Direction of Traffic

SPEED LIMIT (mph)	A	C	E	F and G Range	F + G Max.	H Max.	T
35 or less	250'	40'	0'-200'	500'-3000'	3500'	2000'	50'
40 - 45	350'	80'	0'-200'	700'-3000'	3700'	2000'	100'
50 or greater	500'	100'	200'-300'	1000'-3000'	4000'	2000'	100'

- ① Keep F and G distances as near to minimum values as work permits. However, to allow advancement of the work area without moving signs, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.
- ② If length of work area exceeds 1/4 mile, use TC-214.

Possible Contract Items:
 Flagger
 Traffic Control

IOWA DOT

STANDARD ROAD PLAN

REVISIONS: New logo.

APPROVED BY DESIGN METHODS ENGINEER

LANE CLOSURE WITH FLAGGERS

REVISION	DATE
4	10-15-19

TC-213
SHEET 1 of 1

CONSTRUCTION DOCUMENT



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